BULLETIN No. 11. (Dairy No. 1.)

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF ANIMAL INDUSTRY.

STATISTICS OF THE DAIRY.

COMPILED FROM THE UNITED STATES CENSUS FOR 1890,
AND FROM OTHER RELIABLE SOURCES,
WITH EXPLANATORY NOTES,

BY

HENRY E. ALVORD, C. E.,
CHIEF OF THE DAIRY DIVISION.

Under the direction of
Dr. D. E. SALMON,
Chief of the Bureau of Animal Industry.

1862 1889

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., December 7, 1895.

SIR: I have the honor to transmit herewith for publication a report of Maj. H. E. Alvord, Chief of the Dairy Division of this Bureau, covering the principal statistics relating to the dairy industry of the United States. The subject is an important one, and there is here brought together for the first time the statistical information which shows the development and the magnitude of this branch of American agricultural effort. It is information which every intelligent dairyman needs, and it is also designed as the foundation for much of the future work of the Dairy Division. Its prompt publication in an available form will be of much benefit to an industry which at this time is in great need of assistance.

Very respectfully,

D. E. SALMON,
Chief of Bureau.

Hon. J. STERLING MORTON,
Secretary of Agriculture.

LETTER OF SUBMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry, Dairy Division,
Washington, D. C., November 21, 1895.

Sir: I have the honor to submit herewith for publication a compilation of the principal statistics relating to the dairy industry of this country, constituting the first publication of this division.

A part of the figures thus brought together are easily found, but, on the other hand, many of them are inaccessible to people generally. It is believed that the collection as presented will prove interesting and useful to many persons connected with dairying and form a suitable basis for future publications prepared by this division.

It is disappointing to find little data available as to the dairy interests of foreign countries. About all that can be obtained are the number of cows and other cattle. With a few exceptions, products are mere matters of estimate. Statistics of foreign markets for dairy products can be obtained, but these, together with the whole subject of exports, imports, and domestic markets, are reserved for a subsequent publication.

Yours, respectfully,

Henry E. Alvord,
Chief of Dairy Division.

Dr. D. E. Salmon,
Chief of the Bureau of Animal Industry.

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STATISTICS OF THE DAIRY.

By Henry E. Alvord, C. E., *Chief of Dairy Division.*

INTRODUCTORY.

OBJECT AND PURPOSE OF THE DIVISION.

The order establishing the Dairy Division in the Bureau of Animal Industry of the United States Department of Agriculture, to commence operations July 1, 1895, prescribes that "the object and purpose of this division will be to collect and disseminate information relating to the dairy industry of the United States, in such manner and to such extent as may be deemed most expedient and beneficial."

Information bearing upon dairying will be gathered from all reliable sources available, and classified and arranged at this office for future use. It is proposed to prepare publications of three classes: (1) Leaflets upon points in dairy practice, farm dairying, cooperative effort, organization, equipment, and management of creameries and cheese factories, and facilities for transportation and marketing; (2) bulletins upon dairy topics, somewhat more extended, giving latest information and most approved methods, gathered at home and abroad from expert dairymen, creameries, organizations, and the experiment stations and dairy schools; also, as to condition, changes, and needs of the dairy markets; (3) reports upon the results of special inquiries and investigations.

Among the subjects which will receive early attention and require considerable time are these: (1) The condition and demands of domestic markets for dairy products; (2) the milk trade; production and service for cities and towns; (3) imitations and substitutes for dairy products; and (4) the number and distribution of pure-bred dairy cattle and of grades, with their effects upon products and markets.

As a basis for intelligent work in the various lines indicated, it became necessary to gather and arrange the general facts as to dairying in statistical form. This bulletin has resulted from that endeavor.

CENSUS AND OTHER STATISTICS.

Upon the pages following are given most of the statistics which are available relating to the dairy in the United States, and some upon the cattle and products of foreign countries. The facts connected with domestic trade and foreign commerce in dairy products are in process of compilation for a later publication.

The tables compiled are mainly from the Eleventh Census of the United States, for 1890, and are largely from proof sheets of unpublished volumes, courteously furnished by the Census Division of the Department of the Interior. With these are presented for comparison other figures from like authority, beginning with the Census of 1840, at which time the milch cows of the country were first enumerated. Some general farm statistics are also added which have a bearing upon the dairy industry or show its position with relation to other branches of agriculture.

It should be remembered that in census statistics all enumerations of persons, farms, animals, etc., are for the census year stated, but the figures for products of all kinds represent the returns for the agricultural year next preceding.

All statistics which are given for dates subsequent to the year 1890 are the estimates of this Department or of State officials or other authorities, whose courtesy is hereby acknowledged and who are respectively credited with the information furnished.

The miscellaneous statistics which relate to certain States, or to the country as a whole, are self-explanatory. They all have close connections with the dairy industry.

The text which precedes the principal tables consists of extracts from a report by Mr. John Hyde, now of the Department of Agriculture, late expert special agent in charge of agriculture of the Eleventh Census. This report or statistical analysis was prepared for the forthcoming agricultural volume of the census, and these extracts from the original manuscript are made by permission.

In connection with some of the tables there will be found further explanatory text. That which accompanies the table of cows and cattle of foreign countries includes some interesting comparisons with States of the Union, made by the Assistant Chief of the Dairy Division. Diagrams are used in some instances instead of figures alone, in order to present comparisons in a graphic form.

NEAT CATTLE ON RANGES.

Most of the agricultural statistics of the census were gathered from farms, and this excluded the wide Western areas or "range country," carrying some millions of neat cattle. These "cattle on ranges" were enumerated or closely estimated and separately reported. They numbered in all 6,285,200, distributed through ten States and Territories, as shown by the table. A very insignificant part of these animals could be properly called milch cows or dairy cows, and consequently the omission of these range cattle from the general tables has no appreciable effect upon the statistics of the dairy.

COWS ON FARMS NOT ALL DAIRY CATTLE.

The State of Texas has a little more than 1,000,000 cows reported on farms, and of its range cattle about 750,000 are cows. It is altogether probable that the larger part of these Texas cows "on farms" are beef-breeding animals as truly as those on ranges, and ought not to be included in the milch cows of the country. Table III shows the average annual milk product per cow to be 315 gallons for the whole United States, and 118 gallons for Texas. The same remarks apply to portions of the cows in some other States, but these would be comparatively few in the aggregate. Upon this basis of probable error the total number of milch cows in the United States should be reduced at least half a million. This would raise the average product per cow considerably. The only safe course in any computation, however, is to use the figures of the census as they are given.

COWS IN CITIES, TOWNS, AND VILLAGES.

For census purposes the farm was fixed at a minimum area of 3 acres, and hence the enumeration was omitted of all domestic animals held by occupants of smaller areas. This excluded all cows in cities, towns, and villages, and those owned by residents on small suburban lots. Many large milk-producing herds kept in town and city stables would belong to this excluded class. The total number of cows actually owned in the United States, but not included in the census tables, must be very large, probably exceeding a half million. There is no basis for any close estimate of the number of these animals, or of the quantity and value of their dairy products.

RELATIVE IMPORTANCE OF THE DAIRY.

In a classification of the various annual farm products of the country by values, meats and closely related products stand first in order, the corn crop second, dairy products and the hay crop alternate in the third and fourth places, and wheat occupies the fifth. Hay and corn are so largely tributary to the dairy, as raw materials for its support, that it is fair to place dairy products as second only to meat products in the general list.

(See Diagram A, at page 25.)

ESTIMATE FOR 1895.

At the close of the year 1895 the cows which may properly be regarded as dairy animals constitute about one-third of all the neat cattle in the United States, and are about 17,000,000 in number. Dividing these roughly according to their principal products, it may be considered that 11,000,000 cows are primarily butter producers, 1,000,000 cows produce all our cheese, and the milk from 5,000,000 cows is consumed by the families of their owners, or on the farms where produced, or is sold to be consumed as milk, fresh or condensed. These estimates, with products and values added, may be tabulated as follows:

Cows.	Product.	Rate of product.	Total product.	Rate of value.	Total value.
Millions.					*Dollars.*
11	Butter ...	125 pounds....	1,375,000,000 lbs...	20 cents..	275,000,000
1	Cheese ...	280 pounds....	280,000,000 lbs...	8 cents..	22,400,000
5	Milk	350 gallons....	1,750,000,000 gals..	9 cents..	157,500,000

This gives the grand total value of the dairy products of the country as $454,900,000. If to this be added the skim milk, buttermilk, and whey, at their proper feeding value, and the calves yearly dropped, the annual aggregate value of the products of our dairy cows exceeds $500,000,000. This is regarded as a conservative estimate, and does not include the manure product, which has a very large but quite uncertain value.

If the value, per head, estimated for cows in this country, viz, $22 to $25, is accepted, these animals produce nearly 50 per cent more than their own value, annually. But there is an old farm rule, which has reasonable basis, that a cow is worth whatever she will produce in a year, including her calf. At this rate the average value of the dairy cow in the United States must be about $30.

The foregoing estimates are based upon an average yield of 350 gallons, or about 3,000 pounds of milk, yearly by each cow. This is rather more than shown by the census tables, but those exclude the large number of town cows, which would materially raise the average milk product. This rate of yield provides for butter and cheese product estimated and for consumption, besides the skim milk and buttermilk residue from the butter cows, about 25½ gallons of whole milk per annum per capita of our population. Two hundred and twenty pounds of milk for 365 days (rather more than one-half pint a day) is by no means an excessive allowance, but many people do not, in fact, approach that rate of consumption.

NEEDED IMPROVEMENT IN DAIRY CATTLE.

Assuming that the different products of the average dairy cow in America do not exceed much, if at all, the foregoing estimates, it is evident that the average cow of the country is far below a standard which is desirable and entirely practicable. The tables show that there has been a gradual improvement in the average cow product, especially during the last two or three decades. But the progress is by far too slow.

A very good annual average yield of milk is 5,000 pounds, instead of 3,000, and 200 to 225 pounds of butter per cow, instead of 125 pounds. Many herds kept in a plain, practical farm fashion attain still better results. There are manifestly many cows in the country, probably some millions, that do not produce the value of their annual cost, however cheap and wastefully poor their keeping may be. It is apparent that if but two cows were kept, of the suggested standard of production, in place of every three of the existing average quality, the aggregate products of the dairy industry of the country would be increased more than 10 per cent, while the aggregate cost to their owners ought to be less, and probably would be.

Every possible influence should be exerted to induce dairy farmers to weed out their herds and keep fewer cows and better ones. At least, the average quality of cows kept for dairy purposes should be brought up to a respectable and profitable standard. For the present the cow owner may reasonably require something over 2 gallons of milk per day for four months, then 2 gallons a day for the next four, and at least two months more in milk during the year, with constantly decreasing yield. This provides for an annual average yield of 5,000 pounds of milk, or about 575 gallons, which is a fair ideal standard for the dairy cow in the United States.

DISCUSSION OF THE AGRICULTURAL STATISTICS OF THE ELEVENTH UNITED STATES CENSUS.

By JOHN HYDE, *Expert Special Agent in Charge of Agriculture.*

[Extracts published by permission.]

NEAT CATTLE.

On June 1, 1890, the 4,564,641 farms in the United States contained 1,117,494 working oxen, 16,511,950 milch cows, and 33,734,128 other cattle—a total of 51,363,572.

On June 1, 1880, the 4,008,907 farms contained 993,341 working oxen, 12,443,120 milch cows, and 22,488,550 other cattle—a total of 35,925,011.

There is, therefore, an increase of 124,153, or 12.44 per cent, in the number of working oxen; of 4,068,830, or 32.70 per cent, in the number of milch cows, and of 11,245,578, or 50.01 per cent, in the number of other cattle, the increase in the total number of neat cattle on farms being 15,438,561, or 42.97 per cent.

On June 1, 1890, there were also 5,851,640 neat cattle on ranges (not including 433,580 in Indian Territory), of which 1,959,888 were cows and calves. On June 1, 1880, there was an estimated total of 3,750,022 neat cattle on ranges.

There is thus an apparent increase of 2,535,198, or 67.60 per cent, in the total number of neat cattle on ranges, and of 17,973,759, or 45.30 per cent, in the total number of neat cattle in the United States.

The State having the largest number of neat cattle on farms to every square mile of land surface is Iowa, where the average is 88.25, Illinois standing second, with an average of 54.70; Vermont, Connecticut, New York, Ohio, Indiana, and Missouri have between 40 and 50 neat cattle on farms for every square mile of land surface; Massachusetts, Rhode Island, Pennsylvania, Wisconsin, Kansas, and Oklahoma, between 30 and 40; New Hampshire, New Jersey, Delaware, Maryland, West Virginia, Nebraska, Kentucky, Tennessee, and Texas, between 20 and 30; Maine, the District of Columbia, Virginia, North Carolina, Georgia, Michigan, Minnesota, Alabama, Mississippi, Louisiana, and Arkansas, between 10 and 20; and South Carolina, Florida, North Dakota, South Dakota, Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, and California, under 10.

East of the Mississippi River it is only in the States of Vermont and Florida that there are 1,000 or more neat cattle on farms for every 1,000 of the population. West of the Mississippi River, however, the proportions are almost entirely reversed, there being few States or Territories west of that dividing line the number of whose neat cattle on farms is not largely in excess of population. In Wyoming there are 11 neat cattle on farms to each inhabitant, while the addition of those on the ranges in that State would increase the ratio to more than 15 to 1.

STATISTICS OF QUALITY.

The statistics of quality having been collected in 1890 for the first time, no comparison can be made with previous censuses, and the interest that attaches to this portion of the report is confined to the amount and distribution of the improved stock of the country in 1890 and to comparisons between States or groups of States. Taking the country as a whole, 0.99 per cent of neat cattle on farms in 1890 were pure-bred, 16.08 per cent were grades, one-half blood or higher, and 82.93 per cent were common or native, including grades of less than one-half blood. The highest percentage of pure-bred cattle, 1.77, is found in the North Atlantic Division, which has also 16.41 per cent of grades, making 18.18 per cent of its 5,461,724 neat cattle one-half blood or over. The North Central Division has a smaller percentage (1.21) of pure-bred, but its percentage of grades is 22.21, its total percentage of more than half-blood being thus 23.42. It is certainly a significant fact that of the large total of 24,572,400 neat cattle on farms in this division nearly one-fourth are of this high standard of quality. The South Atlantic Division has 0.73 per cent of pure-bred and 7.41 per cent of grades, and the South Central Division 0.46 per cent of pure-bred and 6.77 per cent of grades, while the Western Division, with only 0.52 per cent of pure-bred, appears, nevertheless, with 14.39 per cent of grades, owing to the exceedingly large proportion of grades reported from certain districts in Colorado, the figures for which could not be verified, nor was there, on the other hand, sufficient warrant for their modification. While the error, if any, will probably have affected the percentages of grades and common stock in the Western Division, the number of cattle involved was not sufficiently large for it to have had any appreciable effect upon the percentages for the United States as a whole.

Examining the statistics of quality by States and Territories, it is found that the highest percentage of pure-bred (5.97) was in the District of Columbia, and the highest percentage of grades, 29.90 (excluding Colorado, for the reasons stated), in Iowa, the highest percentage of pure-bred and grades combined (again excluding Colorado) being in Rhode Island, where 31.47 per cent of neat cattle on farms were half-blood or upward. There is, however, very little difference between Rhode Island and Iowa in this regard, the percentage in the latter State being 31.13. Among the North Atlantic States, Connecticut, Rhode Island, Massachusetts, and New Jersey have all over 3 per cent of pure-bred, and all of these, with the exception of New Jersey, have a very high percentage of grades. Maine and Vermont have a high percentage of grades, with a percentage of pure-bred differing but little from the average of the division as a whole. New York and New

Jersey have each only 1.50 per cent of pure-bred, while they have 15.39 and 11.68 per cent of grades, respectively. In the South Atlantic Group the percentage of pure-bred ranges from 5.97 in the District of Columbia and 2.33 in Maryland to 0.45 in Georgia and 0.25 in Florida; the percentage of grades ranging from 23.58 in the District of Columbia and 18.62 in Delaware to 3.22 in Georgia and 1.24 in Florida. The last-mentioned State appears to have the smallest number of improved stock in proportion to the total number of its neat cattle on farms of any State or Territory in the entire country. The percentage in the Carolinas and Georgia is also exceedingly low. Among the North Central States, Ohio has the highest percentage of pure-bred, but is exceeded both in percentage of grades and in that of pure-bred and grades combined by Iowa. Considering the systematic efforts that have been made to improve the quality of the neat cattle of Minnesota during recent years, it is somewhat surprising that that State should have a smaller total percentage of pure-bred and grades of one-half blood or upward than any other State in the division to which it belongs. The difference, however, between Minnesota, South Dakota, North Dakota, and Wisconsin is very small. There is a wide difference between the percentages in the various States composing the South Central Division—Kentucky having 1.52 per cent of pure-bred and 14.77 per cent of grades, while Louisiana has only 1.98 per cent of pure-bred and grades combined, the percentages in Arkansas, Alabama, and Mississippi being almost equally low. With the exception of Colorado, the States and Territories of the Western Division deviate less from the general average of the entire division than do the States of any other group. Marked differences, however, there certainly are, Utah having 1.25 per cent of pure-bred, as compared with 0.10 per cent in New Mexico and 0.08 per cent in Arizona, and California having 16.93 per cent of grades, as compared with 4.66 per cent in Idaho.

MILCH COWS ON FARMS.

The increase in the number of milch cows on farms between 1880 and 1890 is the largest ever reported, and in 1890 the number to every 100 of the population (26.4) was greater than at any census since 1860. At the censuses of 1850, 1860, 1870, and 1880 the number of milch cows reported as on farms was 6,385,094, 8,585,735, 8,935,332, and 12,443,120, respectively, the number per 100 of the population ranging from 23.2 in 1870 to 27.5 in 1850. This is a remarkably narrow range of fluctuation for five decennial censuses. Under normal conditions, however, the increase in the number of milch cows may be expected to keep pace with the increase of population, and it is interesting to note that out of 49 States and Territories, including the District of Columbia, 43 show an increase and only 6 a decrease between 1880 and 1890, the total increase in the 43 being 4,146,357 and the total decrease in the 6 only 77,527.

In the North Atlantic Division, a division which shows a decrease in the number and area of its farms and in many important branches of agriculture, every State had a larger number of milch cows in 1890 than in 1880. In Pennsylvania the increase was 73,098, in New Jersey 9,498, in New York 2,375, and in the six New England States 75,345, Massachusetts taking the lead with an increase of 21,611. The increase in this division, however, has not kept pace with the growth of population, the increase in the number of milch cows being only 5.02 per cent, while that of population was 19.95 per cent. While New York had a larger number of milch cows than any three other States in the division, not excluding even Pennsylvania, the ratio of milch cows to population was much the highest in Vermont, there being 696 to every 1,000 of the population in that State. In Franklin County, Vt., there were as many as 1,077 milch cows to every 1,000 of the population.

In the South Atlantic Division the largest increase is in Florida, which has 269 milch cows in 1890 for every 100 in 1880. West Virginia, Virginia, Maryland, and Delaware also show an increase. On the other hand, South Carolina and Georgia show a considerable decrease, especially the former; North Carolina and the District of Columbia also reporting a smaller number than in 1880. The decrease in South Carolina and Georgia, and to a less degree that in North Carolina, are especially noteworthy, not merely because the decline is considerable, but because these States form the only important exceptions to that increase in the number of milch cows which is reported from almost every part of the country. That the decrease in these States was more or less general is evident from the fact that in Georgia 77 counties show a decrease as compared with 60 showing an increase; in North Carolina 55 show a decrease as against 40 showing an increase, while in South Carolina 26 show a decrease and only 6 an increase. Taking the division as a whole, there is an increase of 88,705.

The North Central Division witnessed during the decade ending with 1890 an exceedingly large increase in the number of its milch cows and, as will be shown hereafter, a remarkable development of its dairy industry. The total number of milch cows reported as on farms in the 12 States comprised in this division is 8,240,999—49.91 per cent of the total number in the United States, and an increase of 2,838,918 upon the number reported from these 12 States in 1880. In Iowa, the division contains a State that has increased its number of milch cows by 644,231, and that has at length wrested from New York that primacy of position with respect to the number of milch cows and the total production of butter on farms and in factories which the latter State had so long maintained. In Iowa there are no fewer than 32 counties in which there are more than 1,000 milch cows for every 1,000 of the population, Delaware County standing at the head of these and all other counties in the United States with the high average of 1,630 to 1,000. In view of the greatly diminished area both of farms generally and of improved land in Illinois since 1880, the large increase in the number of milch cows in that State, 221,973, or 25.63 per cent, is especially noteworthy. The increase and percentage of increase in Wisconsin, Minnesota, Kansas, and Nebraska have, however, been even greater than in Illinois—Wisconsin showing an increase of 314,246, or 65.69 per cent; Kansas an increase of 323,453, or 77.32 per cent; Minnesota an increase of 318,363, or 115.54 per cent, and Nebraska an increase of 343,858, or 213.32 per cent. The increase in the Dakotas amounts to 257,957; these States reporting more than seven times as many milch cows in 1890 as were contained in the Territory of Dakota in 1880. There has also been a large increase in Michigan and Missouri, a smaller one, but one more commensurate with the growth of population, in Indiana, and an increase of 3.62 per cent, or less than one-fourth of that of population, in Ohio.

In the South Central Division, also, every State shows an increase, the additions to the numbers reported in 1880 ranging from 20,645 in Alabama and 20,769 in Louisiana to 397,263 in Texas. In Tennessee, Alabama, Louisiana, and Arkansas the increase has failed to keep pace with the growth of population, and that such has not been the case with the division as a whole is due to the very large increase (65.54 per cent) in Texas. A noteworthy feature of the statistics for this division is the comparative uniformity in the number of milch cows to every 1,000 of the population in three of the principal States, Kentucky having 196, Tennessee 195, and Alabama 193 milch cows for every 1,000 of their inhabitants. In Texas the average is as high as 449 per thousand, while in Louisiana it is only 149 per thousand.

In the Western Division there is a remarkable correspondence between the increase in population and the increase in the number of milch cows, the former amounting to 71.27 per cent and the latter to 70.76 per cent. With the exception of Arizona and Nevada, which show a decrease (the latter also showing a decrease in population), every State and Territory in this division contained a larger number of milch cows in 1890 than in 1880. In Utah the increase was more than two-fifths, and in Colorado and California more than one-half. The number in Oregon almost doubled, in Montana and Idaho it more than doubled, and in Wyoming it trebled, Washington, also, having a large increase amounting to 156.03 per cent. Only in California, however, was the increase in the decade as much as 100,000 or did the total number reported in 1890 reach 300,000 or even one-half of that number, and the total number of milch cows on farms in the whole of this vast region, comprising considerably more than one-third of the total land surface of the United States, was less than one-half the number in Iowa. At the same time the ratio of milch cows to population was higher in this division than in either the North Atlantic or South Atlantic Division.

DAIRY PRODUCTS.

The total production of milk on farms in the United States in the year ending December 31, 1889 (not including farms of less than 3 acres, except where $500 worth of the produce of the farm had been actually sold during the year), was 5,209,125,567 gallons, equivalent to 315½ gallons for each milch cow reported on June 1, 1890, and to 83 gallons per head of population.

The total production of butter on farms (as above defined) in the year ending December 31, 1889, was 1,024,223,468 pounds, as compared with a total of 777,250,287 pounds in 1879, and the total production of cheese 18,726,818 pounds, as compared with a total of 27,272,489 pounds in 1879, an increase of 246,973,181 pounds, or 31.78 per cent, in the production of butter on farms, and a decrease of 8,545,671 pounds, or 3 per cent, in the production of cheese on farms.

MILK PRODUCTION.

There are few, if any, products of agriculture, using that term in its widest application, the average rate of production of which varies more widely among the different States and Territories than does that of milk. As a general but not invariable rule the average production per milch cow has a certain correspondence with the report as to quality, the District of Columbia, which has the highest percentage of pure-bred cattle in the United States, having the highest average milk production, 533 gallons for each milch cow, while New Mexico, with the lowest percentage of pure-bred cattle, has the lowest average production of milk, only 38.75 gallons per milch cow. The proximity of a market for milk or dairy products is, however, a factor not entirely to be lost sight of in this connection.

Taking the country by grand divisions, the North Atlantic Division, with the highest percentage of pure-bred cattle, has the highest average milk production, 428.44 gallons per milch cow. The variation in the averages in this group of States is not great, the highest average production being 479.94 gallons in Massachusetts and 460.98 gallons in New York, and the lowest 368.58 gallons in Maine and 389.62 gallons in New Hampshire. The next highest divisional average is that of the North Central Division, which stands second also in its percentage of pure-bred cattle. Here the general average is 329.99 gallons, Michigan and Ohio having the highest average, 451.23 gallons and 411.31 gallons, respectively, and Missouri and Kansas the lowest, 227.87 gallons and 271.79 gallons, respectively. In the South Atlantic Division the general average is 242.23 gallons, the District of Columbia and State of Delaware having the highest averages, 533 gallons and 328.46 gallons, respectively, and the States of Georgia and Florida the lowest, 181.55 gallons and 44.60 gallons, respectively. In the South Central Division the general average is 183.66 gallons, the highest being 325.08

gallons in Kentucky and 311.77 gallons in Tennessee, and the lowest 77.03 gallons in Louisiana and 92.16 gallons in Oklahoma. The statistics of the Western Division present several noteworthy features. Among them is a remarkable variation in the average production per milch cow, as between one State or Territory and another, such production ranging from 38.75 gallons in New Mexico to 350.54 gallons in California. Another is the comparatively high average production in some of the new and sparsely populated States, Wyoming and Montana having averages of 262.29 gallons and 250.10 gallons, respectively. The production per capita of population in these States is, however, much below the general average for the United States, and, as is evident from the report, more than one-half of the total milk production of Montana and not far from one-half of that of Wyoming were used in the production of butter and cheese on farms.

The total production of milk in the United States in 1889, compared with the total population in June, 1890, gives an average of about 83 gallons for each inhabitant. The ratio was the highest in the North Central Division, where it was 122 gallons per unit of the population, the States comprised in this division producing, as will be shown hereafter, more than one-half the butter and one-third of the cheese made in the United States, both on farms and in factories. The ratio of milk production to population in the North Atlantic Division was nearly 83 gallons for each inhabitant, in the Western Division it was not quite 67 gallons, while in the South Atlantic and South Central divisions it was 37 gallons and 47 gallons, respectively.

The only States in which the production of milk amounted to 100 gallons or upward per capita of population were New Hampshire, Vermont, and New York in the North Atlantic Division, and Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Nebraska, and Kansas in the North Central Division. Only in Vermont and Iowa was there a production of 200 gallons or upward for each inhabitant. The average in the District of Columbia is less than 2 gallons per capita, the city of Washington deriving its milk supply, mainly, from the States of Maryland and Virginia. In New Mexico the production was less than 5 gallons per capita of population; in Louisiana and Arizona it was under 12 gallons, and in Florida under 13 gallons for each inhabitant.

BUTTER PRODUCTION ON FARMS.

The most noteworthy fact in connection with the production of butter on farms is that, notwithstanding the great extension of the creamery system and the decline in the amount of butter annually exported, such production has increased even more rapidly than population. To go back to the census of 1850, it is found that the total production of butter on farms in 1849 was 313,345,306 pounds, or 13.51

pounds per capita of population. In 1860 the amount reported was 459,681,372 pounds, or 14.62 pounds per capita. In 1870 the amount reported was 514,092,683 pounds, which gave an average of only 13.33 pounds for each inhabitant. Up to this time there had been no creamery butter reported, but in 1880 the production of farm butter averaged 15.50 pounds for each inhabitant, and that of creamery butter 0.58 pound for each inhabitant, the total average being thus 16.08 pounds. At the Eleventh Census, however, the production of butter on farms alone averaged 16.33 pounds per capita of the population, and such had been the increase in the production of butter in creameries that the total production of butter averaged no less than 19.24 pounds per unit of the population.

The complete statistics of the production of butter in creameries, or factories, as such establishments are designated for census purposes, will be found in the report on manufactures, and they are referred to in this connection merely for the purpose of emphasizing the remarkable increase in the production on farms.

The increase in the production of farm butter, as distinguished from that made in creameries, has been very general, 39 States and Territories, considering the two Dakotas as a unit for convenience of comparison with the statistics of 1879, reporting an increase, and only 8, including the District of Columbia, a decrease. It is a significant fact that the whole of the States from which a smaller production of farm butter is reported than at the Tenth Census belong to the North Atlantic Division. Every other portion of the country shows an increase in its production of butter on farms, and, as a rule, the States that have witnessed the greatest extensions of the creamery system, such as Wisconsin, Minnesota, Iowa, and Nebraska, show also the greatest increase in the production of butter on farms. The North Central Division, which appears from the report on manufactures to have produced 72.03 per cent of the total production of creamery butter, produced 50.83 per cent of the total amount of farm butter, and its production, both on farms and in creameries, per capita of the population, is much higher than that of any other of the five grand divisions of States. That concentration of production, which has always been a distinguishing feature of American agriculture, has a remarkable exemplification in the case of butter, an article, the production of which, to a greater or less extent, is almost as general as is its consumption, but more than one-half of whose total production in the United States has, nevertheless, to be credited to 7 States, and almost one-fourth more to 7 others. It should, however, be remembered that the States of principal production are, with a few exceptions, those in which the creamery industry has attained its largest development.

In the production of butter on farms per capita of population, Vermont is far in the lead, its average being 70.14 pounds. On the other hand, the production on farms and in factories combined was under 10 pounds in Washington, under 9 pounds in Montana, Colorado, and Utah, under 8 pounds in Wyoming, under 7 pounds in New Jersey, under 5 pounds in Massachusetts, and under 4 pounds in Rhode Island, for each inhabitant, while in some of the States in which there are no creameries the average production per capita is still smaller, Florida reporting less than 3 pounds and Louisiana and Arizona less than 2 pounds, and New Mexico less than 1 pound for each inhabitant. Of the States in which the production of butter on farms and in creameries is of the greatest importance, relatively to population, Vermont has a production of over 80 pounds per capita, Iowa of over 60 pounds, South Dakota of over 40 pounds, and Wisconsin, Minnesota, North Dakota, Nebraska, and Kansas of over 30 pounds.

Attention has already been called to the large increase in the number of milch cows. The increase in the production of butter per capita of population is, however, due, not alone to the increase in the number of cows, but in no inconsiderable degree to the general stimulus that not only the creamery system, but also the dairy industry, as distinguished from the creamery, is known to have received during the decade ending with 1890, and the result of which is seen in the fact that, while the average production of butter on farms and in factories at the Tenth Census was 64.83 pounds for each milch cow, the average production at the Eleventh Census was 72.98 pounds, an increase of 12.57 per cent. That this is not due directly, if at all, to the extension of the creamery system is shown by the fact that nearly all the States that have witnessed the greatest extension of that system during the decade ending with 1890 show a smaller average production of butter per milch cow than at the Tenth Census, and that many of the leading Southern States that contain no creameries whatever show a remarkable increase in the average production of butter per milch cow, such increase ranging from 50.36 per cent in Mississippi and 52.56 per cent in Arkansas to the increase in Louisiana, where the average production has almost doubled, and in South Carolina and Georgia, where it has more than doubled. In this connection, however, it is important to note that from a considerable number of counties in the South, especially in Georgia, a butter production is reported far in excess of the maximum butter-producing capabilities of the entire milk production of such counties. While this apparent error on the part of enumerators can not but affect, to a greater or less extent, both the total production, either of milk or of butter and the averages for such counties and even for the States in which they are contained, it is not sufficiently general to alter the fact that there has been an increase in the production of butter on the farms and plantations of the Southern States far out of proportion to the increase in the number of milch cows.

PRODUCTION OF CHEESE ON FARMS.

If a reference to the production of butter in creameries is necessary to a proper consideration of the statistics of the production of butter on farms, much more is a reference to the production of cheese in factories necessary to a proper understanding of the statistics of the production of cheese on farms, for while nearly 6 times as much butter is made on farms as in creameries, nearly 13 times as much cheese is made in factories as on farms, and while the production of cheese on farms shows a decrease of nearly one-third, such decrease is more than doubly offset by the increase in the production of cheese in factories. It is exceedingly interesting to observe how the production of cheese on farms has gradually given place to the factory system and how the remarkable change that has been brought about is shown in the statistics of successive censuses. In 1850 there was a reported production of cheese on farms amounting to 105,535,893 pounds; in 1860 the amount reported was 103,663,927 pounds; in 1870 it was 53,492,153 pounds; in 1880, 27,272,489 pounds, and in 1890, 18,726,818 pounds. The reported production in factories began with $67,210 worth in 1850, which was followed by $23,500 worth in 1860, the only decrease ever reported. In 1870 the factory production amounted to 109,435,229 pounds, in 1880 to 215,885,361 pounds, and in 1890 to 238,013,565 pounds.

The largest decrease and percentage of decrease in the production of cheese on farms during the decade ending with 1889 was in the States composing the North Atlantic Division, every one of which has a diminished production, whether the industry is one of considerable importance, as in New York, or of but minor importance, as in Rhode Island and New Jersey. This is not due to the extension of the factory system, as the production of cheese in factories also shows a decrease. In the North Central Division, likewise, the production of cheese on farms was considerably less in 1889 than in 1879, Minnesota, Missouri, the Dakotas, Nebraska, and Kansas forming the only exceptions to the rule. While, however, there has been a remarkable development of the factory system in this division, such extension has been by no means general, Ohio, Indiana, and Illinois showing a diminished production, both in factories and on farms. While in 1879 Ohio and Wisconsin each reported over 2,000,000 pounds, and Illinois and Iowa each over 1,000,000 pounds of cheese made on farms, an amount in excess of 1,000,000 pounds is reported for 1889 only by Ohio and Iowa. As in the case of the creamery system of butter-making, this division, the North Central, is the one that has witnessed during the decade the greatest extension of the cheese-factory system, Wisconsin alone having increased its production of cheese in factories over that reported at the Tenth Census by upward of 36,000,000 pounds (see report on manufactures).

But little cheese is made in the South, the total production on farms of the South Atlantic and South Central divisions being only 589,658 pounds in 1889 and 567,841 pounds in 1879, while the total production in factories fell from 349,147 pounds in 1879–80 to 78,800 pounds in 1889–90. Of the production on farms, Virginia and Texas each contributed over 100,000 pounds. On the other hand, the combined farm production of South Carolina, Florida, Alabama, Mississippi, and Louisiana was only 19,175 pounds, and none of these last-mentioned States reports any production in factories.

In most of the States and Territories of the far West cheese-making on farms gives evidence of having received a decided impetus during the decade, New Mexico producing nearly twice, Nevada nearly 3 times, Wyoming over 5 times, Colorado over 8 times, and Idaho over 10 times as much cheese on farms in 1889 as in 1879. Utah, Oregon, and California also show a large increase, the increase in Utah, however, being more than offset by the diminished production of its factories. Montana and Arizona not only report a smaller production on farms than at the Tenth Census, but are no longer to be credited with any production whatever in factories.

The total production of cheese on farms and in factories per capita of population was not only less in 1889–90 than in 1879–80, but even less than in 1849–50. In Wisconsin this total production in 1889–90 averaged 33.7 pounds for each inhabitant, in New York 20.7 pounds, and in Vermont 18.6 pounds. For the entire country, however, the average per capita of population was only 4.10 pounds, of which less than 5 ounces represented the production on farms. Only in California, Idaho, Vermont, Nevada, and Maine did the production on farms average 1 pound or upward for each inhabitant.

In connection with the relative decline of cheese-making in the United States, of which there is further evidence in the fact that the total production per milch cow in 1889–90 was 4 pounds less than in 1879–80, reference may be made to the fact that the total exports of cheese in the fiscal year ending June 30, 1890, were only 95,376,053 pounds as compared with a total of 127,553,907 pounds in the fiscal year ending June 30, 1880. Whether the shrinkage of exports, which was gradual, was due to a similar gradual diminution of the amount available for export after the requirements of the country had been supplied—the consumption per capita increasing while the production per capita was decreasing—or whether the relatively slow growth of the industry was due, wholly or in part, to a gradually decreasing foreign demand, it does not come within the scope of the census to determine.

GENERAL AGRICULTURAL STATISTICS.

TABLE I.—*Farm and dairy statistics of the United States.*

	From the United States Census of—				
	1890.	1880.	1870.	1860.	1850.*a*
Population	62,622,250	50,155,783	38,558,371	31,443,322	23,191,876
Occupations:					
Total persons reported	22,735,661	17,392,000	....	....	....
Number in agriculture	8,466,251	7,670,493	5,922,471	3,221,574	2,400,583
Farms:					
Total number	4,564,641	4,008,907	2,659,985	2,044,077	1,449,075
Area, total ....acres	623,218,619	536,081,835	407,735,041	407,212,538	293,560,614
Acres unimproved, percentage	42.6	46.9	53.7	59.9	61.5
Average size ....acres	137	134	153	199	203
Number cultivated by owner	3,269,728	2,984,306	....	....	....
Number rented for money	454,659	322,357	....	....	....
Value land, buildings, etc., dollars	13,279,252,649	10,197,096,776	9,262,803,861	6,645,045,007	3,271,575,426
Value implements and machinery ....dollars	494,247,467	406,520,055	336,878,429	246,118,141	151,587,638
Value live stock, all kinds, dollars	2,208,767,573	1,500,384,707	1,525,276,457	1,089,329,915	544,180,516
Value farm products, annual (*b*) ....dollars	2,460,107,454	2,212,540,927	2,447,538,658	....	....
Cattle:					
Milch cows ....number	16,511,950	12,443,120	8,935,332	8,585,735	6,385,094
All others on farms ....do	34,851,622	23,482,391	14,885,276	17,034,284	11,393,813
Cows to every 1,000 of population	264	248	232	273	275
Milk, total produced on farms, gallons	5,209,125,567	530,129,755	235,500,599	(*c*)	(*c*)
Butter made on farms (*d*) .pounds	1,024,223,468	777,250,287	514,092,683	459,681,372	313,345,306
Cheese made on farms (*d*) ...do	18,726,818	27,272,489	53,492,153	103,663,927	105,535,893
Creameries, cheese factories, etc.:					
Number (*e*)	4,712	3,932	1,313	5	8
Butter made in same (*df*), pounds	181,284,916	29,421,784	....	....	....
Cheese made in same (*df*), pounds	238,035,065	215,885,361	109,435,229	....	....
Condensed milk ....pounds	37,926,821	13,033,267	....	....	....
Capital employed....dollars	16,624,163	9,604,803	3.690,075	13,400	11,950
Employees ....number	14,921	7,903	4,607	13	55
Wages paid, annual .dollars	5,390,705	1,546,495	706,566	3,060	11,676
Cost of materials ......do	51,364,574	18,363,579	14,089,284	10,791	54,419
Value of products .....do	62,686,043	25,815,963	16,771,665	23,500	67,210
Total dairy products of United States (*g*), value ......dollars	411,976,522	391,131,618	360,828,000	240,400,580	166,193,144

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a The Sixth United States Census (1840) gives number of milch cows, 4,837,043; value, $72,555,000; value of dairy products for year, $120,926,075.

b The value of farm products for 1869 (census of 1870) included "betterments and additions to stock," so that in products only there was an actual increase in 1880, as compared with 1870. The total value of 1890, compared with 1880, showed only slight increase, although increase in the products themselves was very great; rapid decrease in market prices accounts for this difference.

c No returns of milk product were made for 1850 and 1860. The great variation in the figures given results from these facts: In 1870, only "milk sold from farms" was reported, thus omitting all consumed on farms and there made into butter and cheese; in 1880, "milk sold or sent to butter and cheese factories" was included, again excluding home consumption; in 1890, the returns endeavored to show the total quantity of milk produced on farms.

d To butter and cheese made on farms must be added that made at creameries and cheese factories to get the total product of the country (see Table III). The progressive increase in the production of butter and cheese in the United States, and the ratio of farm and factory product, is graphically shown by Diagram C.

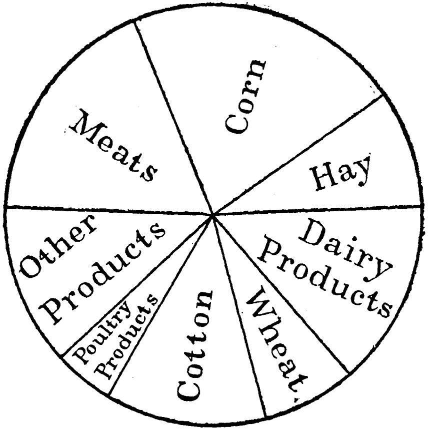
e The establishments reported for 1850, 1860, and 1870 were all cheese factories. The figures for 1850 are approximately correct, but those for 1860 are not; more cheese factories are known to have been in active operation in that year in the State of New York alone.

f The butter and cheese made in creameries and factories in 1889 (census of 1890) does not include the products of urban establishments (see Table IV).

g The total values of dairy products do not include the milk of "town cows" or cows not on farms, and the amounts given are thus much below the whole truth.

Diagram A.—*Relative values of principal farm products of the United States in 1859, 1879, and 1889.*

1859



1879

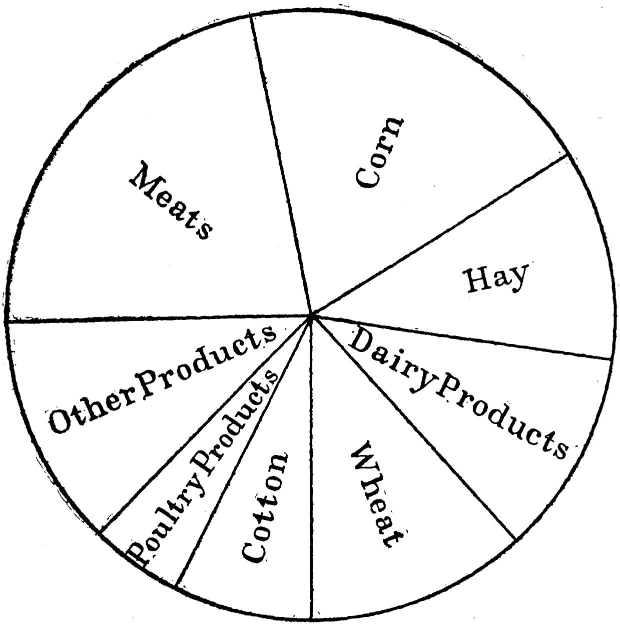
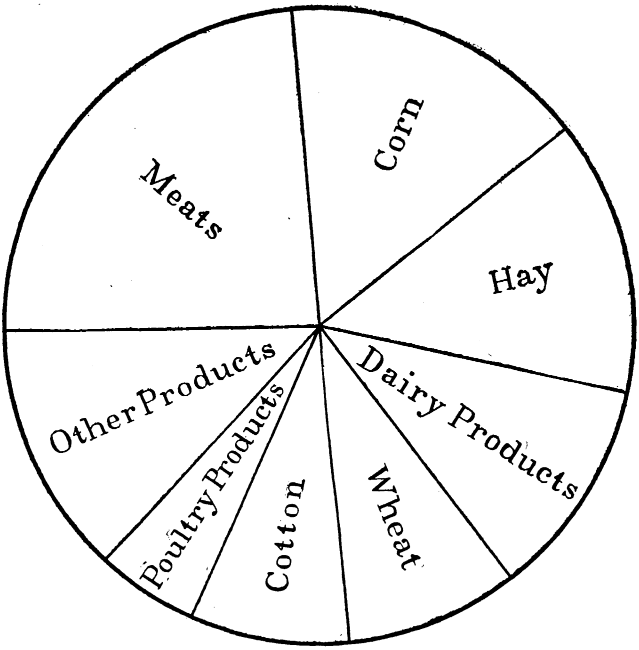


Diagram A.—*Relative value of principal farm products of the United States in 1859, 1879, and 1889.*



1889

Diagram A shows, graphically, the relative values of important farm products for the years 1859, 1879, and 1889. Some important products are omitted in this comparison because their values can not be obtained. Dairy products increased only a little in the last decade, but their increase in value was practically in the same ratio as that of all the other stated products combined.

Value of principal farm products of the United States.

Products.	1859.		1879.		1889.	
	Per cent.	Total value.	Per cent.	Total value.	Per cent.	Total value.
Meats	17.9	$300,000,000	22.1	$800,000,000	23.9	$900,000,000
Corn	21.6	360,680,878	19.2	694,818,304	15.9	597,918,829
Hay	9.1	152,671,168	11.3	409,505,783	14	526,632,062
Dairy products	14.4	240,400,580	10.8	391,131,618	11	411,976,522
Wheat	7.5	124,635,545	12.0	436,968,463	9.1	342,491,707
Cotton	12.6	211,516,625	7.5	271,636,121	8.2	307,008,114
Poultry	4.5	75,000,000	5	180,000,000	5.3	200,000,000
Other products (*a*)	12.4	206,639,527	12.1	440,438,353	12.6	472,492,249
Grand total	100	1,671,544,323	100	3,624,498,642	100	3,758,519,483

a "Other products" include barley, buckwheat, flax fiber, flaxseed, hemp, hops, Irish potatoes, leaf tobacco, maple sirup, maple sugar, oats, rice, rye, sorghum molasses, sweet potatoes, and wool.

TABLE II.—*Dairy statistics by States.*

[From the Eleventh United States Census, 1890.]

States and Territories.	Milch cows.	Milk all produced on farms.	Butter made on farms.	Butter made at creameries.	Cheese made on farms.	Cheese made at factories.
	Number.	*Gallons.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
The United States...	16,511,950	5,209,125,567	1,024,223,468	181,284,916	18,726,818	238,035,065
North Atlantic Division...	3,351,061	1,435,739,255	246,788,544	48,245,172	6,693,671	132,545,023
Maine	157,278	57,969,791	15,593,315	1,406,041	696,052	755,761
New Hampshire	109,423	42,633,268	7,942,840	1,919,590	341,235	103,386
Vermont	231,419	90,712,230	23,314,063	5,085,377	609,586	5,582,327
Massachusetts	172,046	82,571,924	8,358,703	2,051,597	122,900	262,633
Rhode Island	23,943	10,610,547	965,456	233,783	24,631	300,000
Connecticut	127,892	54,413,822	7,196,095	3,173,164	112,566	195,955
New York	1,440,230	663,917,240	98,241,813	14,485,702	4,324,028	119,762,496
New Jersey	161,576	64,003,953	8,367,218	499,531	23,613	563,628
Pennsylvania	927,254	368,906,480	76,809,041	19,390,387	439,060	5,018,837
South Atlantic Division...	1,369,466	331,728,677	78,270,911	2,143,928	271,291	144,000
Delaware	32,574	10,699,362	2,026,498	466,761	359	....
Maryland	142,198	46,601,218	9,999,602	847,277	9,573	14,000
District of Columbia...	863	459,978	13,769	....	....	....
Virginia	273,634	78,143,459	17,949,966	811,890	109,187	109,000
West Virginia	188,492	59,449,066	14,063,627	18,000	74,372	21,000
North Carolina	223,416	55,250,665	13,129,374	....	60,760	....
South Carolina	107,184	23,833,631	5,737,557	....	2,476	....
Georgia	287,717	52,234,508	14,483,323	....	12,833	....
Florida	113,388	5,056,790	867,195	....	1,731	....
North Central Division....	8,240,999	2,719,414,765	520,625,636	129,925,952	6,669,421	103,556,440
Ohio	794,833	326,925,396	74,990,307	6,532,485	1,068,083	21,185,971
Indiana	579,287	200,510,797	48,477,766	1,677,088	360,948	830,552
Illinois	1,087,886	367,269,464	57,121,486	25,553,422	343,456	10,005,477
Michigan	497,611	224,537,488	50,197,481	2,145,731	328,682	5,041,778
Wisconsin	792,620	303,701,134	46,295,623	14,059,876	906,266	53,708,595
Minnesota	593,908	182,968,973	34,766,409	13,911,095	676,642	3,615,528
Iowa	1,498,418	486,961,411	72,893,079	53,143,140	1,038,358	4,705,576
Missouri	851,076	193,931,103	43,108,521	1,529,647	288,620	1,384,397
North Dakota	88,289	26,566,112	5,712,566	446,296	131,374	49,000
South Dakota	210,240	59,666,525	13,127,244	532,513	303,951	250,812
Nebraska	505,045	144,768,263	27,818,078	6,076,783	463,831	804,618
Kansas	741,786	201,608,099	46,117,076	4,317,876	759,210	1,974,136
South Central Division....	2,829,657	519,693,663	135,192,272	110,679	318,367	31,300
Kentucky	364,516	118,497,289	29,038,406	....	64,822	....
Tennessee	345,311	107,657,116	28,314,387	65,990	69,919	31,300
Alabama	292,088	55,508,687	14,548,435	....	6,131	....
Mississippi	310,159	50,803,371	12,988,637	....	4,898	....
Louisiana	167,223	12,881,927	2,089,774	....	3,939	....
Texas	1,003,439	118,475,320	32,100,560	44,689	145,730	....
Oklahoma	16,756	1,544,280	387,920	....	1,600	....
Arkansas	330,165	54,325,673	15,724,144	....	21,328	....
Western Division	720,767	202,549,207	43,346,105	820,185	4,774,068	1,745,802
Montana	24,143	6,038,096	1,062,185	....	11,512	....
Wyoming	11,684	3,064,588	428,269	....	15,196	....
Colorado	76,948	19,680,791	3,282,086	339,000	87,183	44,500
New Mexico	18,507	717,155	86,042	....	18,931	....
Arizona	4,874	709,225	115,203	....	10,855	....
Utah	45,982	8,614,694	1,759,354	55,800	163,539	13,200
Nevada	9,273	2,532,052	489,657	....	51,207	....
Idaho	27,278	5,085,863	1,078,103	13,650	207,213	116,640
Washington	70,721	19,873,281	3,482,225	1,500	71,281	249,700
Oregon	114,156	25,042,276	4,786,277	138,468	265,576	230,540
California	317,201	111,191,186	26,776,704	271,767	3,871,575	1,091,222

DIAGRAM B.—*Total cheese and butter production of the United States in 1890, by States, arranged according to rank.*

[The number in the center of each subdivision denotes the percentage of the total product represented which was made in that State.]

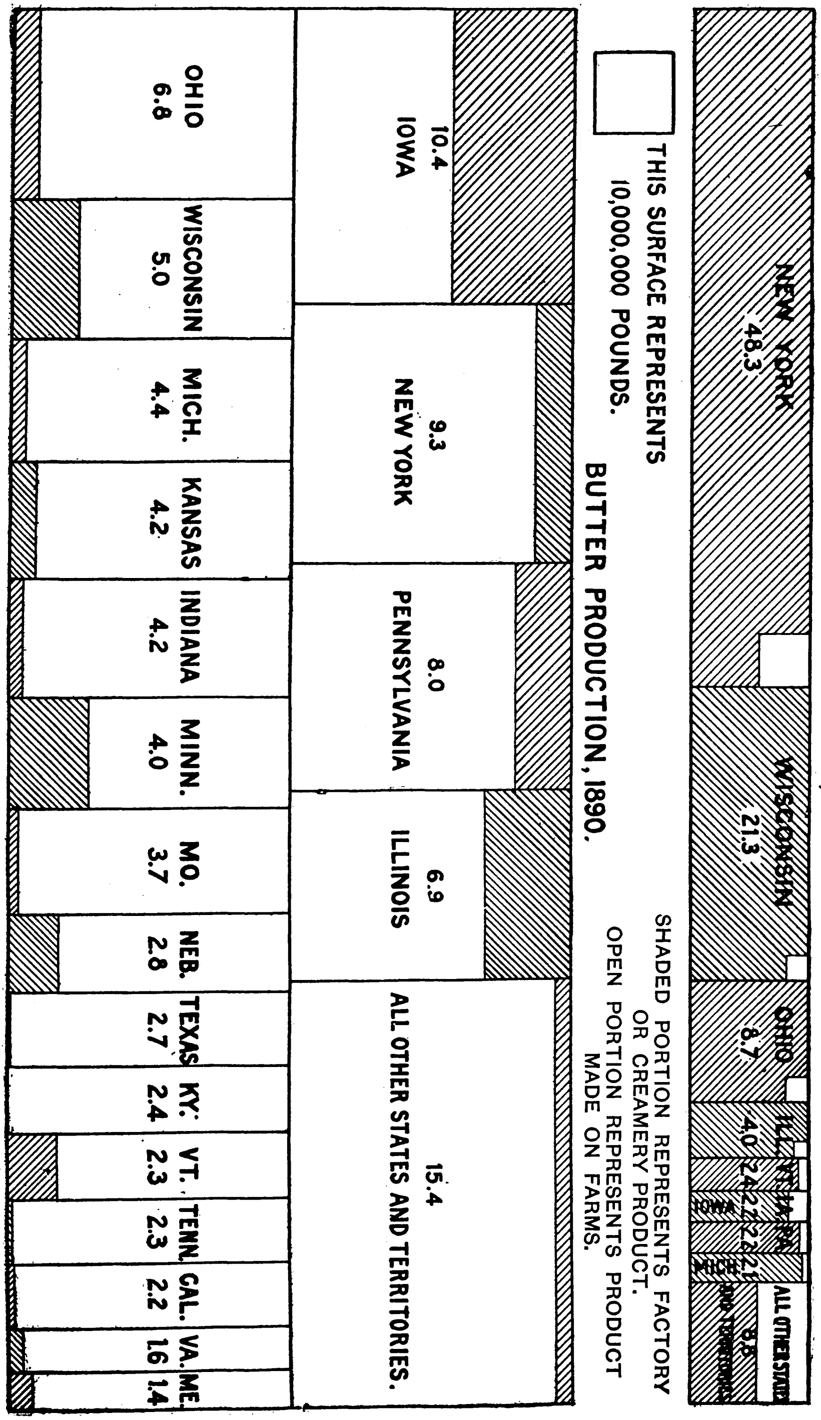


TABLE III.—*Progress of dairying in the United States.*

[United States Census statistics for half a century.]

States and Territories.	Year of census.	Milch cows.		Milk, product reported.	Butter, total made.	Cheese, total made.	Creameries and cheese factories.	Milk, average yield per cow.
		Total number.	Per 1,000 persons.					
				Gallons.	*Pounds.*	*Pounds.*	*Number*	*Gallons.*
United States	1890	16, 511, 950	264	5, 209, 125, 567	1, 205, 508, 384	256, 761, 883	4, 712	315. 4
	1880	12, 443, 120	248	*530, 129, 755	806, 672, 071	243, 157, 850	3, 932	232. 5
	1870	8, 935, 332	232	†235, 500, 599	514, 092, 683	162, 927, 382	*a* 1, 313	205. 9
	1860	8, 585, 735	273	Not given.	459, 681, 372	103, 663, 927	*a b* 5	174. 7
	1850	6, 385, 094	275	Not given.	313, 345, 306	105, 535, 893	*a* 8	166. 5
North Atlantic Division	1890	3, 351, 061	193	1, 435, 739, 255	295, 033, 716	139, 238, 694	1, 971	428. 4
	1880	3, 190, 745	220	*345, 749, 869	277, 008, 072	150, 902, 229	1, 975	....
	1870	2, 833, 022	230	†186, 605, 146	225, 910, 518	35, 144, 853	*a* 913	....
	1860	2, 615, 929	......	....	223, 950, 757	72, 860, 013	....	....
	1850	2, 188, 503	......	....	173, 055, 728	79, 731, 981	....	....
Maine	1890	157, 278	238	57, 969, 791	16, 999, 356	1, 451, 813	42	368. 5
	1880	150, 845	232	*3, 720, 783	14, 109, 966	1, 945, 095	41	314, 2
	1870	139, 259	222	†1, 374, 091	11, 636, 482	1, 152, 590	0	270. 2
	1860	147, 314	235	....	11, 687, 781	1, 799, 862	....	252. 3
	1850	133, 556	229	....	9, 243, 811	2, 434, 454	....	228. 9
New Hampshire	1890	109, 423	290	42, 633, 268	9, 862, 430	444, 623	23	389. 6
	1880	90, 564	261	*5, 739, 128	7, 346, 340	807, 076	2	313. 8
	1870	90, 583	285	†2, 352, 884	5, 965, 080	872. 368	*a* 2	234. 5
	1860	94, 880	291	....	6, 956, 764	2, 232, 092	....	247. 4
	1850	94, 277	265	....	6, 977, 056	3, 196, 563	....	261. 6
Vermont	1890	231, 419	697	90, 712, 230	28, 399, 440	6, 191, 913	124	392. 9
	1880	217, 033	654	*6, 526, 550	25, 252, 663	6, 129, 879	85	387. 3
	1870	180, 285	545	†3, 835, 840	17, 844, 396	7, 814, 879	*a* 28	349. 5
	1860	174, 667	554	....	15, 900, 359	8, 215, 030	....	328
	1850	146, 128	465	....	12, 137, 980	8, 720, 834	....	318. 8
Massachusetts	1890	172, 046	77	82, 571, 924	10, 410, 300	385, 533	37	479. 9
	1880	150, 435	84	*29, 662, 953	9, 799, 804	2, 201, 393	22	396. 2
	1870	114, 771	79	†15, 284, 057	6, 559, 161	4, 131, 359	*a* 23	327. 4
	1860	144, 492	117	....	8, 297, 936	5, 294, 090	....	215
	1850	130, 099	131	....	8, 071, 370	7, 088, 142	....	249. 7
Rhode Island	1890	23, 943	69	10, 610, 547	1, 199, 239	324, 631	4	443. 1
	1880	21, 460	78	*3, 831, 706	1, 007, 103	67, 171	0	323
	1870	18, 806	87	†1, 944. 044	941, 199	81, 976	0	258. 6
	1860	19, 700	113	....	1, 021, 767	181, 511	....	166. 3
	1850	18, 698	126	....	995, 670	316, 508	....	179. 5
Connecticut	1890	127, 892	171	54, 413, 822	10, 369, 259	308, 521	50	425. 4
	1880	116, 319	187	*12, 289, 893	8, 418, 906	1, 051, 677	16	325. 4
	1870	98, 889	184	†6, 253, 259	6, 716, 007	2, 262, 894	*a* 7	290. 9
	1860	98, 877	215	....	7, 620, 912	3, 898, 411	....	277. 2
	1850	85, 461	230	....	6, 498, 119	5, 363, 277	....	301. 3
New York	1890	1, 440, 230	240	663, 917, 240	112, 727, 515	124, 086, 524	1, 337	460. 9
	1880	1, 437, 855	283	*231, 965, 533	120, 878, 201	129, 163, 714	1, 652	401. 6
	1870	1, 350, 661	308	†135, 775, 919	107, 147, 526	100, 776, 012	*a* 818	358. 2
	1860	1, 123, 634	290	....	103, 097, 280	48, 548, 289	....	325. 7
	1850	931, 324	301	....	79, 766, 094	49, 741, 413	....	319. 3
New Jersey	1890	161, 576	112	64, 003, 953	8, 866, 749	587, 241	16	396. 1
	1880	152, 078	134	*15, 472, 783	9, 872, 237	569, 736	11	289. 9
	1870	133, 331	147	†5, 373, 323	8, 266, 023	478, 336	*a* 8	226. 6
	1860	138, 818	207	....	10, 714, 447	182, 172	....	233. 1
	1850	118, 736	242	....	9, 487, 210	365, 756	....	243. 3
Pennsylvania	1890	927, 254	176	368, 906, 480	96, 199, 428	5, 457, 897	338	397. 8
	1880	854, 156	199	*36, 540, 540	80, 322, 852	8, 966, 737	146	322. 8
	1870	706, 437	201	†14, 411, 729	60, 834, 644	2, 792, 676	*a* 27	280. 6
	1860	673, 547	232	....	58, 653, 511	2, 508, 556	....	265. 6
	1850	530, 224	229	....	39, 878, 418	2, 505, 034	....	231. 1
South Atlantic Division	1890	1, 369, 466	155	331, 728, 677	80, 414, 839	415, 291	50	242. 2
	1880	1, 280, 761	169	*9, 446, 511	48, 703, 330	640, 065	31	....
	1870	1, 001, 094	171	†3, 187, 589	28, 575, 306	190, 890	*a* 5	....
	1860	1, 238, 633	......	....	33, 941, 403	369, 302	....	....
	1850	1, 246, 678	......	....	28, 105, 896	610, 836	....	....
Delaware	1890	32, 574	194	10, 699, 362	2, 493, 259	359	6	328. 4
	1880	27, 284	186	*1, 132, 434	1, 902, 075	1, 712	3	247. 9
	1870	24, 082	192	†758, 603	1, 171, 963	315	0	177. 5
	1860	22, 595	202	....	1, 430, 502	6, 579	....	190. 3
	1850	19, 248	209	....	1, 055, 308	3, 187	....	164. 7
Maryland	1890	142, 198	136	46, 601, 218	10, 846, 879	23, 573	24	327. 7
	1880	122, 907	131	*4, 722, 944	7, 715, 196	79, 416	14	221. 3
	1870	94, 794	121	†1, 520, 101	5, 014, 729	6, 732	0	174. 8
	1860	99, 463	145	....	5, 265, 295	8, 342	....	158. 9
	1850	86, 856	149	....	3, 806, 160	3, 975	....	131. 5

* "Milk sold or sent to butter and cheese factories, gallons," census, 1880.
† "Milk sold from farms, gallons," census, 1870.
a Cheese factories only. *b* See Note *e* of Table I.

TABLE III.—*Progress of dairying in the United States*—Continued.

[United States Census statistics for half a century.]

States and Territories.	Year of census.	Milch cows.		Milk, product reported.	Butter, total made.	Cheese, total made.	Creameries and cheese factories.	Milk, average yield per cow.
		Total number.	Per 1,000 persons.					
South Atlantic Division—Continued.				*Gallons.*	*Pounds.*	*Pounds.*	*Number*	*Gallons.*
Dist. Columbia..	1890	863	4	459,978	13,769	....	4	532.9
	1880	1,292	7	*496,789	88,520	155,460	1	433.1
	1870	657	5	†126,077	4,495	....	0	212.4
	1860	639	9	....	18,835	....	....	88.4
	1850	813	16	....	14,872	1,500	....	57
Virginia........	1890	273,634	165	78,143,459	18,761,856	218,187	13	285.5
	1880	243,061	161	*1,224,469	11,500,023	111,535	4	147
	1870	188,471	154	†266,812	6,979,269	84,243	*a* 2	113
	1860	330,713	207	....	13,464,722	280,852	....	123.1
	1850	317,619	223	....	11,089,359	436,292	....	106.3
West Virginia..	1890	188,492	247	59,449,066	14,081,627	95,372	3	315.3
	1880	156,956	254	*750,279	9,309,517	196,987	7	183.5
	1870	104,434	236	†144,895	5,044,475	32,429	0	146.7
North Carolina.	1890	223,416	138	55,250,665	13,129,374	60,760	0	247.2
	1880	232,133	166	*446,798	7,213,507	57,380	2	95.4
	1870	196,731	184	†17,145	4,297,834	123,985	*a* 3	66.1
	1860	228,623	230	....	4,735,495	51,119	....	62.4
	1850	221,799	255	....	4,146,290	95,921	....	56.6
South Carolina.	1890	107,184	93	23,833,631	5,737,557	2,476	0	222.3
	1880	139,881	140	*257,186	3,196,851	16,018	0	70.5
	1870	98,693	140	†241,815	1,461,980	169	0	46.9
	1860	163,938	233	....	3,177,934	1,543	....	58.2
	1850	193,244	289	....	2,981,850	4,970	....	46.3
Georgia........	1890	287,717	157	52,234,508	14,483,323	12,833	0	181.5
	1880	315,073	204	*374,645	7,424,485	19,151	0	72
	1870	231,310	195	†109,139	4,499,572	4,292	0	58.9
	1860	299,688	284	....	5,439,765	15,587	....	54.5
	1850	334,223	369	....	4,640,559	46,976	0	41.8
Florida.........	1890	113,388	290	5,056,790	867,195	1,731	0	44.5
	1880	42,174	157	*40,967	353,156	2,406	0	26.2
	1870	61,922	329	†3,002	100,989	25	0	4.9
	1860	92,974	664	....	408,855	5,280	....	13.3
	1850	72,876	838	....	371,498	18,015	....	15.6
North Central Division.............	1890	8,240,999	369	2,719,414,765	650,551,588	110,225,861	2,617	317.8
	1880	5,402,081	311	*155,044,519	383,455,099	86,532,570	1,648	....
	1870	3,294,007	254	†38,853,454	214,400,425	14,178,005	388	....
	1860	2,556,536	......	....	153,071,558	28,238,411	....	....
	1850	1,564,219	......	....	80,563,732	24,547,518	....	....
Ohio............	1890	794,833	216	326,925,396	81,522,792	22,254,054	361	411.3
	1880	767,043	240	*46,801,537	69,722,506	32,531,683	452	328.8
	1870	654,390	246	†22,275,344	50,266,372	24,153,876	195	279
	1860	676,585	289	....	48,543,162	21,618,893	....	252.5
	1850	544,499	275	....	34,449,379	20,819,542	....	234.4
Indiana.........	1890	579,287	264	200,510,797	50,154,854	1,191,500	55	346.1
	1880	494,944	250	*6,723,840	37,712,316	1,676,825	49	241
	1870	393,736	234	†936,983	22,915,385	391,487	17	177.8
	1860	363,553	269	....	18,306,651	605,795	....	153
	1850	284,554	288	....	12,881,535	624,564	....	138.4
Illinois.........	1890	1,087,886	284	367,269,464	82,674,908	10,348,933	266	337.5
	1880	865,913	281	*45,419,719	60,208,972	21,253,194	285	239.7
	1870	640,321	252	†9,258,545	36,083,405	5,734,004	69	186.5
	1860	522,634	305	....	28,052,551	1,848,557	....	165.2
	1850	294,671	346	....	12,526,543	1,278,225	....	132.6
Michigan.......	1890	497,611	238	224,537,488	52,343,212	5,370,460	101	451.2
	1880	384,578	235	*7,898,273	38,865,106	3,953,585	74	324.7
	1870	250,859	127	†2,277,122	24,400,185	2,301,801	30	304
	1860	179,543	240	....	15,503,482	1,641,897	....	269.7
	1850	99,676	250	....	7,065,878	1,011,492	....	224.5
Wisconsin......	1890	792,620	470	303,701,134	60,355,499	54,614,861	966	383.1
	1880	478,374	364	*25,156,977	33,842,336	19,535,324	414	267.3
	1870	308,377	292	†2,059,105	22,473,036	3,288,581	54	231.3
	1860	203,001	262	....	13,611,328	1,104,300	....	207.5
	1850	64,339	211	....	3,633,750	400,283	....	176.7
Minnesota......	1890	593,908	456	182,968,973	48,677,504	4,292,170	115	308.1
	1880	275,545	353	*1,504,407	19,244,835	985,329	27	216.3
	1870	121,467	276	†208,130	9,522,010	271,477	2	239.1
	1860	40,344	235	....	2,957,673	199,314	....	225.7
	1850	607	101	....	1,100	....	....	5.4
Iowa............	1890	1,498,418	784	486,961,411	126,036,219	5,743,934	500	324.9
	1880	854,187	526	*15,965,612	61,665,071	3,852,801	244	215

* "Milk sold or sent to butter and cheese factories, gallons," census, 1880.

† "Milk sold from farms, gallons," census, 1870.

a Cheese factories only.

TABLE III.—*Progress of dairying in the United States*—Continued.

[United States Census statistics for half a century.]

States and Territories.	Year of census.	Milch cows.		Milk, product reported.	Butter, total made.	Cheese, total made.	Creameries and cheese factories.	Milk, average yield per cow.
		Total number.	Per 1,000 persons.					
North Central Division—Continued.				*Gallons.*	*Pounds.*	*Pounds.*	*Number*	*Gallons.*
Iowa (Cont'd)...	1870	369,811	310	†688,800	27,512,179	1,344,647	14	228.5
	1860	189,802	281	....	11,953,666	918,635	....	194.6
	1850	45,704	238	....	2,171,188	209,840	....	147.9
Missouri........	1890	851,076	318	193,931,103	44,638,168	1,673,017	68	227.8
	1880	661,405	305	*3,173,017	28,712,988	873,549	30	134.9
	1870	398,515	232	†857,704	14,455,825	213,865	1	111.6
	1860	345,243	292	....	12,704,837	259,633	....	111.3
	1850	230,169	337	....	7,834,359	203,572	....	103.1
North Dakota..	1890	88,289	482	26,566,112	6,158,862	180,374	10	300.8
South Dakota...	1890	210,240	639	59,666,525	13,659,757	554,763	16	283.8
Dakota Ter.....	1880	40,572	301	*415,119	2,006,755	40,137	4	159.3
	1870	4,151	297	....	209,735	1,850	0	152.1
	1860	286	57	....	2,170	....	....	22.8
Nebraska.......	1890	505,045	477	144,768,263	33,894,861	1,268,449	58	286.6
	1880	161,187	357	*625,783	9,790,970	554,772	21	186.6
	1870	28,940	235	†95,059	1,539,535	78,542	5	164.7
	1860	6,995	241	....	342,541	12,342	....	149
Kansas.........	1890	741,786	520	201,608,099	50,434,952	2,733,346	101	271.7
	1880	418,333	420	*1,360,235	21,683,244	1,275,371	48	160.
	1870	123,440	339	†196,662	5,022,758	241,607	1	125.8
	1860	28,550	267	....	1,093,497	29,045	....	116.1
South Central Division	1890	2,829,657	258	519,693,663	135,302,951	349,667	22	183.6
	1880	2,147,440	241	*6,084,788	74,208,771	276,923	10	....
	1870	1,494,434	232	†2,811,323	34,062,404	311,498	4	....
	1860	1,859,117	.....	....	44,132,365	644,416	....	....
	1850	1,356,491	.....	....	31,324,361	571,582	....	....
Kentucky	1890	364,516	196	118,497,289	29,038,406	64,822	15	325
	1880	301,882	183	*2,513,209	18,261,004	58,468	8	189.5
	1870	247,615	187	†1,345,779	11,874,978	361,219	4	149.9
	1860	269,215	233	....	11,716,609	190,400	....	131.4
	1850	247,475	252	....	9,947,523	213,954	....	121.6
Tennessee	1890	345,311	195	107,657,116	28,380,377	101,219	4	311.6
	1880	303,900	197	*1,006,795	17,889,969	107,740	2	180.3
	1870	243,197	193	†415,786	9,571,069	142,240	0	120.5
	1860	249,514	225	....	10,017,737	135,575	....	121.1
	1850	250,456	250	....	8,139,585	177,681	....	98.3
Alabama........	1890	292,088	193	55,508,687	14,548,435	6,131	0	190
	1880	271,443	215	*267,387	7,997,719	14,091	0	89.4
	1870	170,640	171	†104,657	3,213,753	2,732	....	57.1
	1860	230,537	239	....	6,028,478	15,923	....	78.5
	1850	227,791	295	....	4,008,811	31,412	....	53
Mississippi.....	1890	310,159	240	50,803,371	12,988,637	4,898	0	163.7
	1880	268,178	237	*427,492	7,454,657	4,239	0	85
	1870	173,899	210	†17,052	2,613,521	3,099	0	45.2
	1860	207,646	263	....	5,006,610	4,427	....	72.4
	1850	214,231	353	....	4,346,234	21,191	....	61
Louisiana.......	1890	167,223	149	12,881,927	2,089,774	3,939	0	77
	1880	146,454	156	*256,241	916,089	7,618	0	20.6
	1870	102,076	140	†833,928	322,405	11,747	0	17.8
	1860	129,662	183	....	1,444,742	6,153	....	33.5
	1850	105,576	204	....	683,069	1,957	....	19.4
Texas	1890	1,003,439	449	118,475,320	32,145,249	145,730	3	118
	1880	606,176	381	*1,296,806	13,899,320	58,466	0	71
	1870	428,048	523	†62,771	3,712,747	34,342	0	26.3
	1860	601,540	996	....	5,850,583	275,128	....	29.7
	1850	217,811	1,023	....	2,344,900	95,299	....	32.8
Oklahoma.......	1890	16,756	270	1,544,280	387,920	1,600	0	92.1
Arkansas.......	1890	330,165	293	54,325,673	15,724,144	21,328	0	164.5
	1880	249,407	311	*316,858	7,790,013	26,301	0	95.1
	1870	128,959	266	†31,350	2,753,931	2,119	....	64.3
	1860	171,003	393	....	4,067,556	16,810	....	71.5
	1850	93,151	444	....	1,854,239	30,088	....	60.1
Western Division ..	1890	720,767	238	202,549,207	44,166,290	6,519,870	52	281
	1880	422,093	239	*13,804,068	23,296,799	4,806,063	268	....
	1870	312,775	316	†4,043,087	11,144,030	3,666,907	3	....
	1860	315,520	.....	....	4,585,289	1,551,785	....	....
	1850	29,203	.....	....	295,589	73,976	....	....
Montana........	1890	24,143	183	6,038,096	1,062,185	11,512	1	250
	1880	11,308	290	*41,165	412,738	80,070	3	116.5
	1870	12,432	592	†105,186	408,080	27,603	1	109.3

*"Milk sold or sent to butter and cheese factories, gallons," census, 1880.
†"Milk sold from farms, gallons," census, 1870.

TABLE III.—*Progress of dairying in the United States*—Continued.

[United States Census statistics for half a century.]

States and Territories.	Year of census.	Milch cows.		Milk, product reported.	Butter, total made.	Cheese, total made.	Creameries and cheese factories.	Milk, average yield per cow.
		Total number.	Per 1,000 persons.					
Western Division—Continued.				*Gallons.*	*Pounds.*	*Pounds.*	*Number*	*Gallons.*
Wyoming........	1890	11, 634	192	3, 064, 588	428, 269	15, 196	1	262. 2
	1880	3, 730	178	* 75, 343	105, 643	2, 930	0	106. 1
	1870	707	79	† 4, 980	1, 200	....	0	12. 1
Colorado........	1890	76, 948	187	19, 680, 791	3, 621, 086	131, 683	6	255. 7
	1880	28, 770	148	* 506, 706	862, 479	75, 367	2	107. 8
	1870	25, 017	625	† 19, 520	392, 920	37, 626	1	49. 5
New Mexico....	1890	18, 507	120	717, 155	860, 042	18, 931	0	38. 7
	1880	12, 955	108	* 10, 036	44, 827	10, 501	0	12. 1
	1870	16, 417	178	† 813	12, 912	27, 239	0	4. 3
	1860	34, 369	366	....	13, 259	37, 240	....	2. 4
	1850	10, 635	172	....	111	5, 848	....	. 7
Arizona	1890	4, 874	81	709. 225	115, 203	10, 855	0	145. 5
	1880	9, 156	229	* 42, 618	62, 217	62, 217	2	27. 2
	1870	938	94	† 4, 800	800	14, 500	0	25. 7
Utah	1890	45, 982	221	8, 614, 694	1, 815, 154	176, 739	3	187. 3
	1880	32, 768	228	* 155, 263	1, 064, 923	266, 749	11	105. 6
	1870	17, 563	202	† 11, 240	310, 335	69, 603	0	58. 3
	1860	11, 967	299	....	316, 046	53, 331	....	84. 4
	1850	4, 861	442	....	83, 309	30, 998	....	58. 9
Nevada.........	1890	9, 273	202	2, 532, 052	489, 657	51, 207	1	273
	1880	13, 319	215	* 149, 889	338, 688	17, 420	2	88. 3
	1870	6, 174	147	† 63, 850	110, 880	....	0	64. 2
	1860	947	135	....	7, 700	....	....	24. 4
Idaho............	1890	27, 278	325	5, 085, 863	1, 091, 753	323, 853	4	186. 4
	1880	12, 838	389	* 15, 627	314, 244	117, 295	6	75. 7
	1870	4, 171	278	† 11, 250	111, 480	4, 464	0	84. 1
Washington....	1890	70, 721	203	19, 873, 281	3, 483, 725	320, 981	3	281
	1880	27, 622	368	* 226, 703	1, 404, 066	179, 200	2	160. 1
	1870	16, 938	706	† 21, 060	407, 306	17, 465	0	74. 6
	1860	9, 660	805	....	153, 092	12, 146	....	49
Oregon	1890	114, 156	363	25, 042, 276	4, 924, 745	496, 116	12	219. 3
	1880	59, 549	340	* 227, 540	2, 528, 225	299, 732	24	129. 9
	1870	48, 325	531	† 107, 367	1, 418, 373	119, 383	1	92. 2
	1860	53, 170	1, 022	....	1, 000, 157	105, 379	....	58. 7
	1850	9, 427	725	....	211, 464	36, 980	....	71. 9
California	1890	317, 201	263	111, 191, 186	27, 048, 471	4, 962, 797	21	350. 5
	1880	210, 078	243	* 12, 353, 178	16, 158, 749	3, 720, 739	216	274. 2
	1870	164, 093	293	† 3, 693, 021	7, 969, 744	3, 395, 074	0	192. 4
	1860	205, 407	541	....	3, 095, 035	1, 343, 689	....	52. 8
	1850	4, 280	46	....	705	150	....	. 5

* "Milk sold or sent to butter and cheese factories, gallons," census, 1880.
† "Milk sold from farms, gallons," census, 1870.

NOTE.—Table III is taken entire from census reports excepting the last column. In that the figures for 1890 are computed from the census, and those for the other years are quoted from reports of the Department of Agriculture.

The column of "average milk yield per cow" shows an increase, decade after decade, which indicates a rapid improvement in cows. But these figures are misleading, because their basis varies for different years. In the earlier censuses the milk yield was not reported. For 1850 and 1860 only the butter and cheese made on farms were given, and the average milk yield per cow estimated erroneously by reducing the reported products to an equivalent in milk and dividing by the number of cows. The cows were thus credited with only such milk as was made into butter and cheese. For 1870 and 1880 the same plan was followed, but milk sold being also reported, this was added to that manufactured on farms; the large quantity of milk consumed on farms was still omitted from the computation. For 1890 the census reported the total milk product for the first time; this being directly divided by the number of producing cows, gives the annual average yield per cow, which should be accurate. Yet even for 1890 the yield appears unreliable in some cases. In the States of Connecticut, Massachusetts (480 gallons), Michigan (451), New York (461), Ohio, and Rhode Island the yield per cow appears to be above 400 gallons per year, while other States which carry just as good cows show a much lower average, and some States are so reported as to allow less than a gallon of milk per day per cow for a milking period limited to three or four months. Liberal allowances must be made in accepting such figures, although they are the best available.

DIAGRAM C.—*Cheese and butter production—five census years.*

[Factory and creamery production are shaded.]

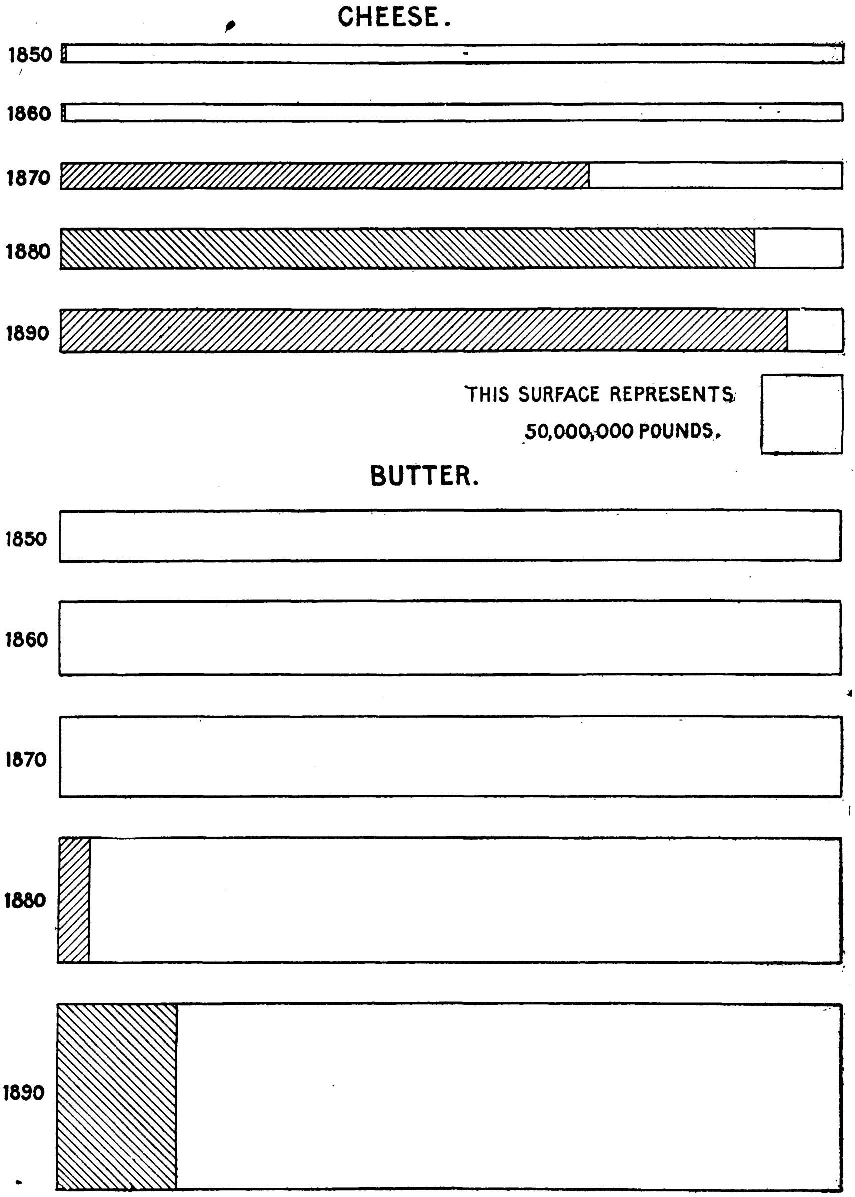


TABLE IV.—*Butter, cheese, and condensed-milk factories, including all "creameries."*

[From the census of the United States for 1890, 1880, and 1870.]

NOTE.—Urban establishments were separately reported from 20 different States in 1890, but incompletely, as shown below. None such reported in 1880.

Totals for the United States.	1890.	Urban establishments, 1890.	1880.	1870.
Number of establishments reporting	4,552	160	3,932	1,313
Capital employed, aggregate .... dollars..	16,016,573	607,590	9,604,803	3.690,075
Plant, total value .... do	11,639,692	449,880	...	...
Land .... do	968,333	145,692	...	...
Buildings .... do	5,588,257	150,149	...	...
Machinery .... do	5,083,102	154,039	...	...
Live assets .... do	4,376,881	157,710	...	...
Expenses, total annual .... do	813,954	61,228	...	...
Employees .... average number..	14,369	552	7,903	4,607
Total wages paid .... dollars..	5,116,005	274,700	1,546,495	706,566
Earnings of skilled operatives, weekly:				
Average for males above 16 years..do....	9.48	...	...	...
Average for females above 15 years.do....	5.35	...	...	...
Average for children .... do	2.75	...	...	...
Hours of labor, daily average:				
May to November .... hours ..	11.09	...	...	...
November to May .... do	10.03	...	...	...
Materials used:				
Aggregate cost .... dollars..	49,819,301	1,545,273	18,363,579	14,089,284
For butter—				
Gathered cream .... pounds..	483,630,741	...	...	...
Milk .... do....	1,893,319,242	...	...	...
Total cost .... dollars..	29,538,827	...	4,644,214	...
For cheese—				
Milk .... pounds..	2,684,550,517	...	...	...
Total cost .... dollars..	16,953,992	...	12,692,507	14,089,284
For condensed milk—				
Milk .... pounds..	83,617,655	...	...	...
Sugar .... do....	13,372,365	...	...	...
Total cost .... dollars..	2,792,086	...	1,026,858	...
Fuel and rented power, cost .... do....	534,396	...	...	...
Products:				
Aggregate value .... do....	60,635,705	2,050,338	25,815,963	16,771,665
Butter made—				
Quantity .... pounds..	181,284,916	...	29,421,784	...
Value .... dollars..	36,675,411	...	6,535,799	...
Cheese, full cream—				
Quantity .... pounds..	184,158,174	...	...	...
Value .... dollars..	16,112,871	...	...	...
Cheese, skim—				
Quantity .... pounds..	22,467,132	...	...	...
Value .... dollars..	1,230,297	...	...	...
Cheese, all other made—				
Quantity .... pounds..	31,409,759	...	...	...
Value .... dollars..	2,459,783	...	...	...
Cheese, total made—				
Quantity .... pounds..	238,035,065	...	215,885,361	109,435,229
Value .... dollars..	19,802,951	...	17,659,123	16,710,569
Condensed milk—				
Quantity .... pounds..	37,926,821	...	13,033,267	...
Value .... dollars..	3,586,927	...	1,547,588	...
Skim milk and all other products, value, dollars	570,416	...	73,453	61,096

NOTE.—In this table the figures in the column for 1870 relate to cheese factories, no other product being reported. The column for 1880 requires no explanation except that at this time butter factories or creameries had become numerous, although their product was but little more than one-third in value of the factory cheese produced. For 1890 there are two columns, as the "urban establishments" for making butter and cheese were dealt with by the census separately from the butter and cheese factories in general.

It should be noted that these figures are from the "number of establishments reporting." It is known that, in fact, there were a good many more creameries in operation in the country in 1889-90 than the number reported in the table. The aggregate products of factory-made butter and cheese thus shown must be considerably less than the actual output of existing factories. The census returns of total dairy products of the United States for 1889 must, therefore, be below the actual facts.

This table, although thus incomplete, shows the rapid growth of the cooperative or factory system of dairying. Farm cheese making has practically disappeared since the advent of cheese factories and creameries, and the proportion of factory-made butter is fast increasing, although the quantity of butter made on farms is increasing also.

In 1890 the number of creameries, etc., reported by the census for New York allows one for every 36 square miles in the State. These factories thus averaged but 6 miles apart, giving the longest average drive for their patrons as about 4 miles.

Iowa reported 500 creameries in 1890, and State officials give 774 as the number for 1895. The latter gives one factory to every 72 square miles, an average of about 8 miles apart.

As to the 4,552 suburban factories reporting in 1890, it appears that these establishments averaged 4,261 pounds of milk per day as the material used at each creamery or factory. The average number of employees was 3⅛ to a factory. The combined factories reporting handled about 17 per cent of all the milk (reported) produced on the farms of the United States.

In connection with this table, attention is called to the Diagrams B and C.

TABLE V.—*Number and value of milch cows in the United States, and of other farm animals, yearly, 1870 to 1895, inclusive, with a few earlier years.*

[From the annual reports of the Department of Agriculture.]

Year.	Milch cows.		Oxen and other cattle.		Horses.		Total value of farm animals.
	Number.	Value.	Number.	Value.	Number.	Value.	
1840	4, 837, 043	$72, 555, 000	10, 171, 586	....	4, 335, 669	....	....
1850	6, 385, 094	127, 840, 880	11, 393, 813	....	4, 336, 719	....	$544, 180, 516
1860	8, 585, 735	264, 643, 375	17, 034, 284	....	6, 249, 174	....	1, 089, 329, 915
1870	10, 095, 600	394, 940, 745	15, 388, 500	$346, 926, 440	8, 248, 800	$671, 319, 461	1, 822, 327, 377
1871	10, 023, 000	374, 179, 093	16, 212, 200	369, 940, 056	8, 702, 000	683, 257, 587	1, 810, 142, 711
1872	10, 303, 500	329, 408, 983	16, 389, 800	321, 562, 693	8, 990, 900	659, 707, 916	1, 659, 211, 933
1873	10, 575, 900	314, 358, 931	16, 413, 800	329, 298, 755	9, 222, 470	684, 463, 957	1, 684, 431, 693
1874	10, 705, 300	299, 609, 309	16, 218, 100	310, 649, 803	9, 333, 800	666, 927, 406	1, 619, 944, 472
1875	10, 906, 800	311, 089, 824	16, 313, 400	304, 858, 859	9, 504, 200	646, 370, 939	1, 618, 012, 221
1876	11, 085, 400	320, 346, 728	16, 785, 300	319, 623, 509	9, 735, 300	632, 446, 985	1, 647, 719, 138
1877	11, 260, 800	307, 743, 211	17, 956, 100	307, 105, 386	10, 155, 400	610, 206, 631	1, 576, 506, 083
1878	11, 300, 100	298, 499, 866	19, 223, 300	329, 541, 703	10, 329, 700	600, 813, 681	1, 574, 620, 783
1879	11, 826, 400	256, 953, 928	21, 408, 100	329, 543, 327	10, 938, 700	573, 254, 808	1, 445, 423, 062
1880	12, 027, 000	279, 899, 420	21, 231, 000	341, 761, 154	11, 201, 800	613, 296, 611	1, 576, 917, 556
1881	12, 368, 653	296, 277, 060	20, 937, 702	362, 861, 509	11, 429, 626	667, 954, 325	1, 721, 795, 252
1882	12, 611, 632	326, 489, 310	23, 280, 238	463, 069, 499	10, 521, 554	615, 824, 914	1, 906, 468, 250
1883	13, 125, 685	396, 575, 405	28, 046, 077	611, 549, 109	10, 838, 111	765, 041, 308	2, 338, 215, 268
1884	13, 501, 206	423, 486, 649	29, 046, 101	683, 229, 054	11, 169, 683	833, 734, 400	2, 467, 868, 924
1885	13, 904, 722	412, 903, 093	29, 866, 573	694, 382, 913	11, 564, 572	852, 282, 947	2, 456, 428, 383
1886	14, 235, 388	389, 985, 523	31, 275, 242	661, 956, 274	12, 077, 657	860, 823, 208	2, 365, 159, 862
1887	14, 522, 083	378, 789, 589	33, 511, 750	663, 137, 926	12, 496, 744	901, 685, 755	2, 400, 586, 938
1888	14, 856, 414	366, 252, 173	34, 378, 363	611, 750, 520	13, 172, 936	946, 096, 154	2, 409, 043, 418
1889	15, 298, 625	366, 226, 376	35, 032, 417	597, 236, 812	13, 663, 294	982, 194, 827	2, 507, 050, 058
1890	15, 952, 883	353, 152, 133	36, 849, 024	560, 625, 137	14, 213, 837	978, 516, 562	2, 418, 766, 028
1891	16, 019, 591	346, 397, 900	36, 875, 648	544, 127, 908	14, 056, 750	941, 823, 222	2, 329, 787, 770
1892	16, 416, 351	351, 378, 132	37, 651, 239	570, 749, 155	15, 498, 140	1, 007, 593, 636	2, 461, 755, 698
1893	16, 424, 087	357, 299, 785	35, 954, 196	547, 882, 204	16, 206, 802	992, 225, 185	2, 483, 506, 681
1894	15, 487, 400	358, 998, 661	36, 608, 168	536, 789, 747	16, 081, 139	769, 224, 799	2, 170, 816, 754
1895	16, 504, 629	362, 601, 729	34, 364, 216	482, 999, 129	15, 893, 318	576, 730, 580	1, 817, 802, 110

NOTE.—Some of the figures above agree exactly with those of the census for the corresponding year. In other cases, for census years, the numbers of animals as reported by the Department differ somewhat from those of the census.

TABLE VI.—*Cattle statistics (additional) by States.*

[From the Eleventh United States Census.]

States and Territories.	Neat cattle on farms, June 1, 1890.				Percentage according to quality or breeding.		
	Total oxen, cows, and other cattle.	Quality or breeding.			Pure-bred.	Grades one-half or over,	Common or native.
		Pure-bred recorded.	Grade, one-half blood or higher.	Common native or low-grade.			
The United States	51,363,572	506,060	8,257,989	42,599,523	.99	16.08	82.93
North Atlantic Division	5,461,724	96,661	896,528	4,468,535	1.77	16.41	81.82
Maine	299,110	5,506	79,542	214,062	1.84	26.59	71.57
New Hampshire	222,888	3,542	42,679	176,667	1.59	19.15	79.26
Vermont	395,288	6,306	90,929	298,053	1.60	23	75.40
Massachusetts	256,128	8,473	65,655	182,000	3.31	25.63	71.06
Rhode Island	34,777	1,248	9,697	23,832	3.59	27.88	68.53
Connecticut	203,661	7,424	43,914	152,323	3.65	21.56	74.79
New York	2,131,392	32,053	327,972	1,771,367	1.50	15.39	83.11
New Jersey	212,062	6,480	36,843	168,739	3.06	17.37	79.57
Pennsylvania	1,706,418	25,629	199,297	1,481,492	1.50	11.68	86.82
South Atlantic Division	3,890,107	28,293	288,420	3,573,394	.73	7.41	91.86
Delaware	51,844	1,018	9,651	41,175	1.96	18.62	79.42
Maryland	267,189	6,225	47,442	213,522	2.33	17.76	79.91
District of Columbia	988	59	233	696	5.97	23.58	70.45
Virginia	747,334	7,291	110,946	629,097	.97	14.85	84.18
West Virginia	566,066	3,042	41,971	521,053	.54	7.41	92.05
North Carolina	630,903	3,461	31,474	595,968	.55	4.99	94.46
South Carolina	268,293	2,053	12,544	253,696	.76	4.68	94.56
Georgia	873,926	3,931	28,148	841,847	.45	3.22	96.33
Florida	483,564	1,213	6,011	476,340	.25	1.24	98.51
North Central Division	24,572,400	297,303	5,457,320	18,817,777	1.21	22.21	76.58
Ohio	1,763,387	36,465	433,849	1,293,073	2.07	24.60	73.33
Indiana	1,511,908	23,538	294,954	1,193,416	1.56	19.51	78.93
Illinois	3,063,119	42,872	752,556	2,267,691	1.40	24.57	74.03
Michigan	1,046,771	17,468	230,310	798,993	1.67	22	76.33
Wisconsin	1,647,947	13,866	205,021	1,429,060	.84	12.44	86.72
Minnesota	1,373,579	10,825	134,397	1,228,357	.79	9.78	89.43
Iowa	4,895,550	60,295	1,463,856	3,371,399	1.23	29.90	68.87
Missouri	2,969,716	38,443	696,046	2,235,227	1.29	23.44	75.27
North Dakota	281,874	1,996	33,774	246,104	.71	11.98	87.31
South Dakota	687,919	4,527	74,468	608,924	.66	10.82	88.52
Nebraska	2,142,597	17,593	392,326	1,732,678	.82	18.31	80.87
Kansas	3,188,033	29,415	745,763	2,412,855	.92	23.39	75.69
South Central Division	11,724,483	54,260	793,609	10,876,614	.46	6.77	92.77
Kentucky	1,066,091	16,172	157,503	892,416	1.52	14.77	83.71
Tennessee	965,339	9,844	112,443	843,052	1.02	11.65	87.33
Alabama	875,976	2,767	22,519	850,690	.32	2.57	97.11
Mississippi	914,778	3,217	23,595	887,966	.35	2.58	97.07
Louisiana	581,103	1,436	10,050	569,617	.25	1.73	98.02
Texas	6,201,552	17,971	430,334	5,753,247	.29	6.94	92.77
Oklahoma	126,955	384	13,876	112,695	.30	10.93	88.77
Arkansas	992,689	2,469	23,289	966,931	.25	2.35	97.40
Western Division	5,714,858	29,543	822,112	4,863,203	.52	14.39	85.09
Montana	691,898	3,574	69,387	618,937	.52	10.03	89.45
Wyoming	685,969	1,918	59,497	624,554	.28	8.67	91.05
Colorada	717,861	5,524	240,340	471,997	.77	33.48	65.75
New Mexico	577,511	559	89,408	487,544	.10	15.48	84.42
Arizona	268,122	223	14,813	253,086	.08	5.53	94.39
Utah	200,266	2,501	26,560	171,205	1.25	13.26	85.49
Nevada	210,900	807	19,621	190,472	.38	9.30	90.32
Idaho	219,431	1,285	10,226	207,920	.59	4.66	94.75
Washington	255,134	2,129	20,809	232,196	.83	8.16	91.01
Oregon	520,648	3,687	39,965	476,996	.71	7.68	91.61
California	1,367,118	7,336	231,486	1,128,296	.54	16.93	82.53

DIAGRAM D.—*Number of cows in each State and Territory according to the Eleventh Census.*

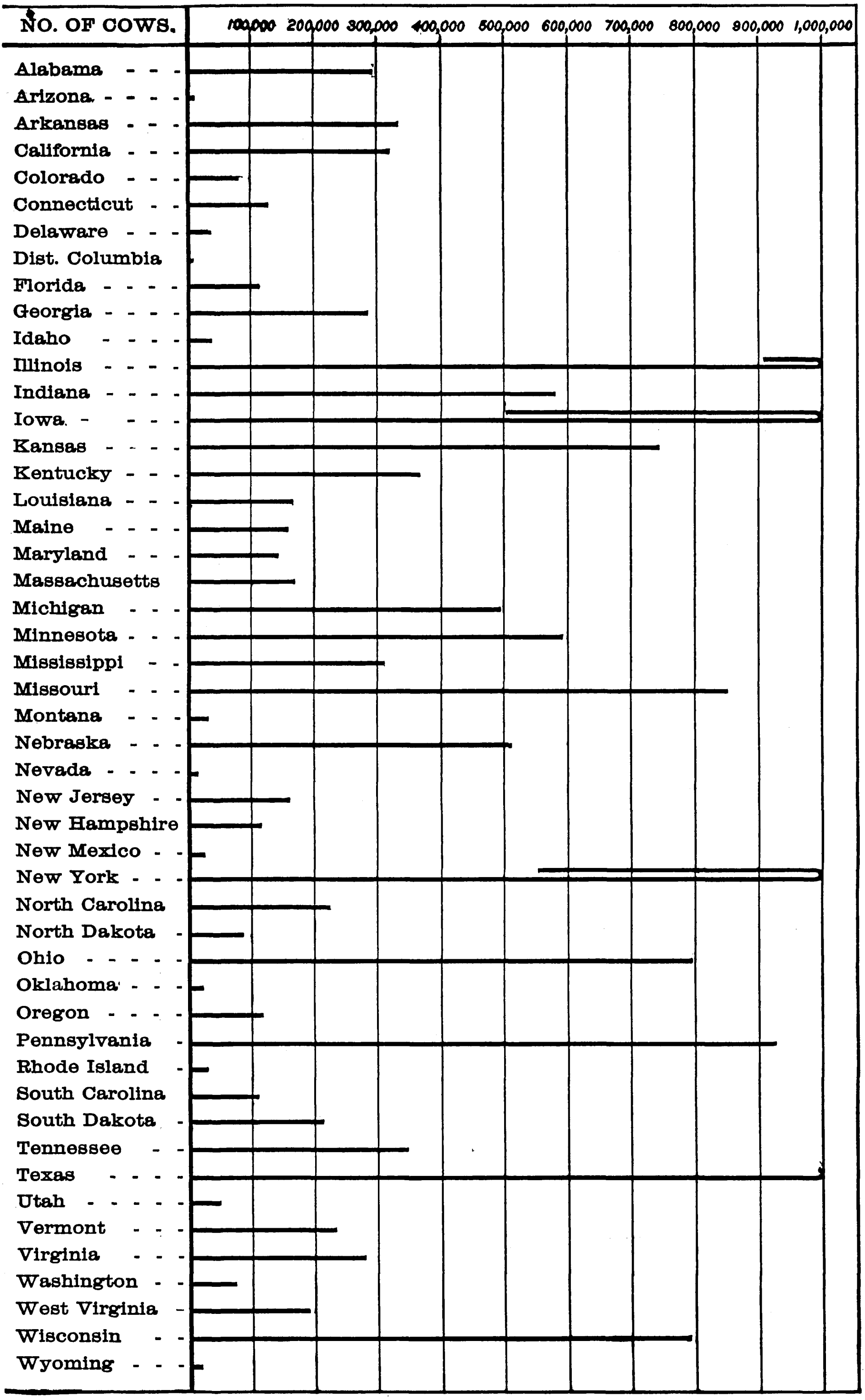


Table VII.—*Farm statistics by States.*

[From the Eleventh United States Census, 1890.]

States and Territories.	Population.	Persons "in agriculture."	Farms.	Average size of farms.	Milch cows.	All other neat cattle.
The United States	62, 622, 250	8, 477, 691	4, 564, 641	*Acres.* 137	16, 511, 950	34, 851, 622
North Atlantic Division	17, 401, 545	1, 080, 030	658, 569	95	3, 351, 061	2, 110, 663
Maine	661, 086	78. 517	62, 013	100	157, 278	141, 832
New Hampshire	376, 530	41, 285	29, 151	119	109, 423	113, 465
Vermont	332, 422	53, 505	32, 573	135	231, 419	163, 869
Massachusetts	2, 238, 943	69, 116	34, 374	87	172, 046	84, 082
Rhode Island	345, 506	11, 576	5, 500	85	23, 943	10, 834
Connecticut	746, 258	45, 243	26, 350	86	127, 802	75, 769
New York	5, 997, 853	396, 505	226, 223	97	1, 440, 230	691, 162
New Jersey	1, 444, 933	68, 040	30, 828	86	161, 576	50, 486
Pennsylvania	5, 258, 014	316, 243	211, 557	87	927, 254	779, 164
South Atlantic Division	8, 857, 920	1, 641, 959	749, 600	134	1, 369, 466	2, 520, 641
Delaware	168, 493	18, 099	9, 381	113	32, 574	19, 270
Maryland	1, 042, 390	90, 563	40, 798	121	142, 198	124, 991
District of Columbia	230, 392	1, 706	382	31	863	125
Virginia	1, 655, 980	257, 372	127, 600	150	273, 634	473, 700
West Virginia	762, 794	118, 623	72, 773	142	188, 492	377, 574
North Carolina	1, 617, 947	364, 955	178, 359	127	223, 416	407, 487
South Carolina	1, 151, 149	322, 887	115, 008	115	107, 184	161, 109
Georgia	1, 837, 353	404, 995	171, 071	147	287, 717	586, 209
Florida	391, 422	62, 759	34, 228	107	113, 388	370, 176
North Central Division	22, 362, 279	3, 086, 618	1, 923, 822	133	8, 240, 999	16, 331, 401
Ohio	3, 672, 316	398, 877	251, 430	93	794, 833	968, 554
Indiana	2, 192, 404	320, 435	198, 167	103	579, 287	932, 621
Illinois	3, 826, 351	430, 795	240, 681	127	1, 087, 886	1, 975, 233
Michigan	2, 093, 889	274, 000	172, 344	86	497, 611	549, 160
Wisconsin	1, 686, 880	231, 311	146, 409	115	792, 620	855, 327
Minnesota	1, 301, 826	188, 405	116, 851	160	593, 908	779, 671
Iowa	1, 911, 896	322, 664	201, 903	151	1, 498, 418	3, 397, 132
Missouri	2, 679, 184	387, 535	238, 043	129	851, 076	2, 118, 640
North Dakota	182, 719	43, 843	27, 611	277	88 289	193, 585
South Dakota	328, 808	68, 154	50, 158	227	210, 240	477, 679
Nebraska	1, 058, 910	170, 058	113, 608	190	505, 045	1, 637, 552
Kansas	1, 427, 096	250, 541	166, 617	181	741, 786	2, 446, 247
South Central Division	10, 972, 893	2, 306, 883	1, 086, 772	144	2, 829, 657	8, 894, 826
Kentucky	1, 858, 635	318, 624	179, 264	119	364, 516	701, 575
Tennessee	1, 767, 518	328, 750	174, 412	116	345, 311	620, 028
Alabama	1, 513, 017	369, 498	157, 772	126	292, 088	583, 888
Mississippi	1, 289, 600	358, 094	144, 318	122	310, 159	604, 619
Louisiana	1, 118, 587	236, 138	69, 294	138	167 223	413, 880
Texas	2, 235, 523	428, 097	228, 126	225	1, 003, 439	5, 198, 113
Oklahoma	61, 834	13, 889	8, 826	182	16, 756	110, 199
Arkansas	1, 128, 179	253, 793	124, 760	119	330, 165	662, 524
Western Division	3, 027, 613	337, 328	145, 878	324	720, 767	4, 994, 091
Montana	132, 159	13, 635	5, 603	351	24, 143	667, 755
Wyoming	60, 705	7, 894	3, 125	586	11, 684	674, 285
Colorado	412, 198	36, 730	16, 389	281	76, 948	640, 913
New Mexico	153, 593	23, 171	4, 458	177	18, 507	559, 004
Arizona	59, 620	6, 531	1, 426	910	4, 874	263, 248
Utah	207, 905	19, 761	10, 517	126	45, 982	154, 284
Nevada	45, 761	5, 126	1, 277	1, 301	9, 273	201, 627
Idaho	84, 385	13, 210	6, 603	197	27, 278	192, 153
Washington	349, 390	37, 547	18, 056	231	70, 721	184, 413
Oregon	313, 767	44, 521	25, 530	271	114, 156	406, 492
California	1, 208, 130	129, 202	52, 894	405	317, 201	1, 049, 917

COWS AND CATTLE OF FOREIGN COUNTRIES.

By R. A. Pearson, B. S., *Assistant Chief of Dairy Division.*

Table VIII gives the number of cows and all cattle in countries where such statistics have been collected. In most cases an earlier and later date are given to show whether stock raising is increasing or decreasing. The figures are taken chiefly from official documents. Other sources of information are the reports of the statistician of the United States Department of Agriculture, the Statesman's Year Book, and "Agricultural Returns for Great Britain," which latter contains some statistics of the important European countries, as well as of British provinces. Sometimes equally reliable authorities differ. This may be due to reference to different times of the year, or one writer may include a province which the other omits.

In some countries where the number of cattle is very small in proportion to the population there are large numbers of buffalo, reindeer, goats, llamas, or other animals for the supply of milk and meat. The statistics of Japan show that cows are used in that country for transportation and tillage. Remembering these facts and the difference of development of dairying in different countries, it is evident that the number of cows alone does not show the condition of the dairy industry.

Considering the large amounts of our dairy products, the development of our dairy cattle, and the intensity of the industry in many sections, the United States is the leading dairy as well as stock-raising country. In certain small districts of Europe dairying is extensively and successfully carried on. It is not of much importance in sparsely inhabited and semicivilized countries.

Denmark is noted for the large amount of butter of fine quality which is made there. In Bulletin No. 5 of the United States Department of Agriculture, Bureau of Animal Industry, Prof. C. C. Georgeson gives the estimated butter yield of Denmark for 1891 and the number of cattle for 1888. From the available data it is estimated that there were 954,660 cows in Denmark in 1891, which was more than 65 per square mile, and above 439 per thousand persons. This small country is less than one-third the size of New York State, it has a denser population, more than twice as many cows per square mile, and produced in 1891 about five times as much butter per square mile as was made in New York. Its milk and cheese trade is comparatively small. The number of cows per square mile is about the same as in Orange County, N. Y. Nine States of the Union have more cows per thousand persons than Denmark.

In 1893 England and Wales each had about one and one-fifth as many cows per square mile as New York. Ireland, only two-thirds the size of New York, had about the same total number of cows. Wisconsin, which is twice as large as Scotland, had in 1893 as many cows per square mile as that country possessed in 1890.

Holland is a little smaller than Massachusetts and Connecticut together. It had in 1892 about two and one-half times as many cows per square mile as Iowa in 1890, and almost five times as many as Wisconsin in 1890, and as many cows per thousand persons as Kentucky.

France is four times as large as New York, and has as many cows per square mile. Germany is a little larger than France, and has about one and one-half times as many cows per square mile as New York.

Japan has a smaller number of cows per one thousand persons than any State or Territory, and in 1892 had less per square mile than North Carolina in 1890.

Australian butter has recently come into some prominence in our foreign markets, and it is interesting to note that the leading dairy colony of Australia, Victoria, which is about one and two-thirds times as large as North Carolina, or a little larger than Minnesota, had in 1892 less than 5 cows per square mile, and produced only about 275 pounds of butter per square mile, resembling in these respects North Carolina in 1890.

Canada is our chief competitor in the foreign cheese market. Recent statistics show that its dairy interests per square mile are comparatively small. The appendix to the report of the minister of agriculture for 1893 takes the following from the census of 1890:

	Number.	Capital.	Hands employed.	Wages paid.	Value of raw material.	Value of product.
Cheese factories	1, 565	$2, 586, 599	3, 013	$753, 067	$6, 804, 611	$9, 784, 288
Creameries	170	540, 598	425	106, 303	595, 421	913, 591

From special schedules returned by 451 factories and creameries the following additional information is obtained (the numbers refer to the factory season):

	Average number of days operated.	Cows per factory.	Patrons per factory.	Cows per patron.	Pounds milk for 1 pound of product.	Price of product.	Price of 100 pounds milk at factory.
Cheese factories	177	337	50. 55	6. 67	10. 14	$0. 09+	$0. 77
Creameries	183	330	60. 89	5. 42	25. 26	. 20+	. 77—

	Average return for milk—		Average number of pounds milk per cow—		Average number of pounds product per cow—	
	Per cow.	Per patron.	Per season.	Per day.	Per season.	Per day.
Cheese factories	$19. 65	$131. 00	2, 638	14. 90	260. 01	1. 47
Creameries	18. 09	98. 10	2, 362	12. 34	93. 54	. 51

The following gives the butter and cheese production of Canada, 1890:

	Made in home dairies.	Made in factories.	Total production.
	Pounds.	*Pounds.*	*Pounds.*
Cheese	6, 267, 203	108, 714, 311	114, 981, 514
Butter	111, 370, 210	4, 567, 955	115, 938, 165

By comparing with the previous tables it will be seen that in 1890 the total cheese production of Canada was less than that of New York, and her butter production was slightly greater than that of New York, but less than that of Iowa.

During the ten years from 1880 to 1890 the production of cheese in Canada increased 80 per cent, and the production of butter 11 per cent. In the same period the cheese production of the United States increased less than 6 per cent, and the butter production 50 per cent. In the same time the number of cows increased 16 per cent in Canada, and over 32 per cent in the United States, and population increased 12 per cent in Canada and 25 per cent in this country. Wisconsin made large increases during this time, as is shown by the following:

Per cent increase in ten years of population, cows, butter, and cheese production in Canada, United States, and Wisconsin.

	Canada.	United States.	Wisconsin.
Population	12	25	28
Number of cows	16	32	66
Cheese production	80	6	180
Butter production	11	50	78

Ontario is the leading dairy province of Canada. It is about four times as large as Michigan and has less than one-half as many cows per square mile. It produces about one-fifth as much cheese per square mile as is made in New York. The 1,011 factories of Ontario made in 1894, 97,284,547 pounds of cheese, valued at $9,441,247, or 9.7 cents per pound; it required 10.56 pounds of milk for 1 pound of cheese. Patrons received an average of 77.2 cents for 100 pounds of milk. The average Ontario factory manufactures about 100,000 pounds of cheese in a season. In some counties where dairying is a leading branch of agriculture over $30 worth of cheese is produced per head of the rural population. In the same year, 1894, the 115 creameries made about 3,000,000 pounds of butter, valued at $628,200, or 20.94 cents per pound.

Manitoba has about the same area and character as North Dakota. It is now making rapid advances in dairying. Twelve of the 19 creameries and 20 of the 42 cheese factories have commenced operations within a year.

Nova Scotia is one-fourth as large as Nebraska. In 1891 these two had about the same number of cows per square mile.

In some countries detailed statistics of cattle are collected. German reports give the number of cattle of different ages, also the number of calves and the proportion of them it is expected will be raised. The agricultural returns for Great Britain give the number of cattle under 1 year, between 1 and 2 years, and over 2 years of age. An example of these details is given below.

Example of foreign cattle statistics—German Empire, 1885.

Horses:	
Colts under 1 year	190,022
Colts 1 year and under 2 years	194,066
Horses 2 years and under 3 years	175,367
Total under 3 years	559,455
Horses 3 years and over:	
Stallions	13,882
Horses in agriculture	2,228,529
Horses in military service	107,147
All other over 3 years	613,303
Total 3 years and over	2,962,861
Grand total	3,522,316

Cattle:	
Calves under 6 weeks	512,706
Calves 6 weeks to 6 months	1,133,133
Calves 6 months to 2 years	3,422,347
Total under 2 years	5,068,186
Number to be raised as bulls	91,752
Cattle 2 years old and over:	
Breeding bulls	185,026
Other bulls and oxen	1,445,204
Cows	9,086,906
Total 2 years and over	10,717,136
Grand total	15,785,322

Sheep (*in three classes*)—1, fine wooled· 2, mutton breeds; 3, all others. Lambs, yearlings and over 1 year, in each class.

TABLE VIII.—*Cows and cattle of foreign countries for stated years.*

[From various authorities.]

Countries.	Years.	Cows.	All cattle.	Years.	Cows.	All cattle.
Algeria	1880	....	1, 163, 513	1893	....	1, 233, 051
Argentina	1883	....	*12, 000, 000	1893	....	*22, 000, 000
Australasia	1884	....	*8, 154, 701	1892	1, 249, 720	12, 343, 853
Australia	1884	....	7, 325, 867	1892	994, 707	11, 351, 967
New South Wales	1884	....	1, 336, 329	1892	365, 110	2, 147, 074
Queensland	1884	....	4, 266, 172	1892	*125, 000	6, 591, 416
South Australia	1884	....	389, 726	1892	79, 420	625, 887
Victoria	1884	....	1, 262, 538	1892	417, 177	1, 824, 704
Western Australia	1884	....	71, 102	1892	*8, 000	162, 886
New Zealand	1881	....	698, 637	1892	*220, 000	821, 801
Tasmania	1884	....	128, 834	1892	35, 013	170, 085
Austria	1880	4, 138, 625	8, 584, 077	1890	4, 254, 303	8, 643, 936
Belgium	1880	796, 178	1, 382, 815	....	....	....
Brazil	....	....	....	1891	....	*17, 000, 000
Canada	1881	1, 595, 800	3, 434, 781	1891	1, 829, 375	4, 060, 662
British Columbia	1881	10, 878	80, 451	1891	17, 817	126, 729
Manitoba	1881	20, 355	60, 281	1891	82, 614	229, 707
New Brunswick	1881	103, 965	212, 560	1891	104, 797	202, 439
Nova Scotia	1881	137, 639	325, 603	1891	135, 043	309, 776
Ontario	1881	782, 243	1, 702, 167	1894	834, 237	2, 099, 301
Quebec	1881	490, 977	950, 125	1891	546, 986	970, 887
Prince Edward Island	1881	45, 895	90, 722	1891	45, 788	91, 629
The Territories	1881	3, 848	12, 872	1891	36, 997	233, 721
Cape of Good Hope	1875	....	1, 329, 445	1893	....	1, 929, 800
Ceylon	1884	....	963, 896	1893	....	1, 062, 776
Chile	1882	....	311, 000	....	....	....
Costa Rica	....	....	....	1892	....	345, 665
Cuba	....	....	....	1892	....	2, 485, 766
Denmark	1881	898, 790	1, 470, 078	1893	1, 011, 098	1, 696, 190
Egypt	1887	....	462, 000	....	....	....
Finland	1888	....	966, 511	1890	....	928, 276
France	1881	7, 290, 827	11, 576, 190	1893	6, 005, 246	12, 154, 641
Germany	1883	9, 087, 293	15, 786, 764	1892	9, 946, 164	17, 555, 694
Greece	1877	....	279, 445	(†)	....	337, 000
Hungary	1880	2, 035, 217	5, 311, 378	1884	....	4, 759, 393
India	....	....	....	1890	....	49, 635, 590
Italy	1881	2, 366, 556	4, 783, 232	1890	....	*5, 000, 000
Jamaica	1883	....	84, 206	1893	....	110, 720
Japan	1887	598, 104	1, 020, 222	1892	643, 500	1, 093, 638
Netherlands	1880	908, 000	1, 469, 600	1892	893, 900	1, 528, 400
Newfoundland	1875	....	13, 939	1891	....	23, 822
Nicaragua	1884?	....	400, 000	....	....	....
Norway	1875	741, 598	1, 016, 617	1890	705, 188	1, 004, 191
Orange Free State	1881	....	464, 575	1890	....	*895, 099
Paraguay	1882	....	500, 000	1891	....	861, 954
Poland	1888	....	3, 013, 392	....	....	....
Portugal	1882	....	624, 658	....	....	....
Roumania	1880	....	*3, 600, 000	1890	....	2, 520, 380
Russia in Europe	1883	....	23, 628, 031	1888	....	24, 609, 260
Servia	1882	....	826, 550	1891	....	819, 251
Spain	1880	....	*2, 460, 253	....	....	....
Sweeden	1883	1, 456, 504	2, 287, 013	1893	1, 647, 400	2, 473, 981
Switzerland	1876	....	1, 035, 930	1886	....	1, 212, 538
United Kingdom	‡1881–85	3, 762, 931	10, 225, 379	1895	3, 937, 590	10, 753, 314
England	‡1881–85	1, 687, 166	4, 324, 641	1895	1, 786, 370	4, 472, 565
Ireland	1885	1, 417, 481	4, 228, 851	1895	1, 433, 960	4, 358, 041
Island of Jersey	....	....	....	1895	6, 748	12, 282
Island of Guernsey	....	....	....	1895	3, 663	7, 519
Isle of Man	....	....	....	1895	7, 399	21, 136
Scotland	‡1881–85	400, 268	1, 116, 876	1895	423, 967	1, 177, 947
Wales	‡1881–85	265, 483	668, 286	1895	275, 483	703, 824
United States	1885	13, 904, 722	43, 771, 295	1895	16, 504, 629	50, 868, 845
Uruguay	1883	....	6, 010, 000	1889	....	8, 339, 600
Venezuela	1888	....	8, 476, 300	....	....	....

* Official estimates. † Latest official returns, published 1894. ‡ Average.

TABLE IX.—*Population and number of cows per square mile of land surface in each State and Territory in 1890.*

	Persons.	Cows.		Persons.	Cows.		Persons.	Cows.
United States	21.08	5.56	Maine	22.11	5.26	Oklahoma	1.59	0.43
Alabama	29.36	5.62	Maryland	105.72	14.42	Oregon	3.32	1.20
Arizona	.53	.04	Massachusetts	278.48	21.40	Pennsylvania	116.88	20.61
Arkansas	21.27	6.23	Michigan	36.46	8.73	Rhode Island	318.44	22.06
California	7.75	2.03	Minnesota	16.44	7.52	South Carolina	38.16	3.55
Colorado	3.98	.74	Mississippi	27.83	6.74	South Dakota	4.28	2.73
Connecticut	154.03	26.40	Missouri	38.98	12.38	Tennessee	42.34	8.27
Delaware	85.97	16.62	Montana	.91	.17	Texas	8.52	3.83
Florida	7.22	2.10	Nebraska	13.78	6.57	Utah	2.53	.56
Georgia	31.15	4.88	Nevada	.42	.08	Vermont	36.39	25.33
Idaho	1	.32	N. Hampshire	41.81	12.16	Virginia	41.27	6.84
Illinois	68.33	19.43	New Jersey	193.82	21.67	Washington	5.22	1.06
Indiana	61.05	16.09	New Mexico	1.25	.15	West Virginia	30.95	7.65
Iowa	34.46	27.25	New York	125.95	30.24	Wisconsin	30.98	14.56
Kansas	17.47	9.04	North Carolina	33.30	4.60	Wyoming	.62	.12
Kentucky	46.47	9.11	North Dakota	2.60	1.26			
Louisiana	24.63	3.72	Ohio	90.10	19.50			

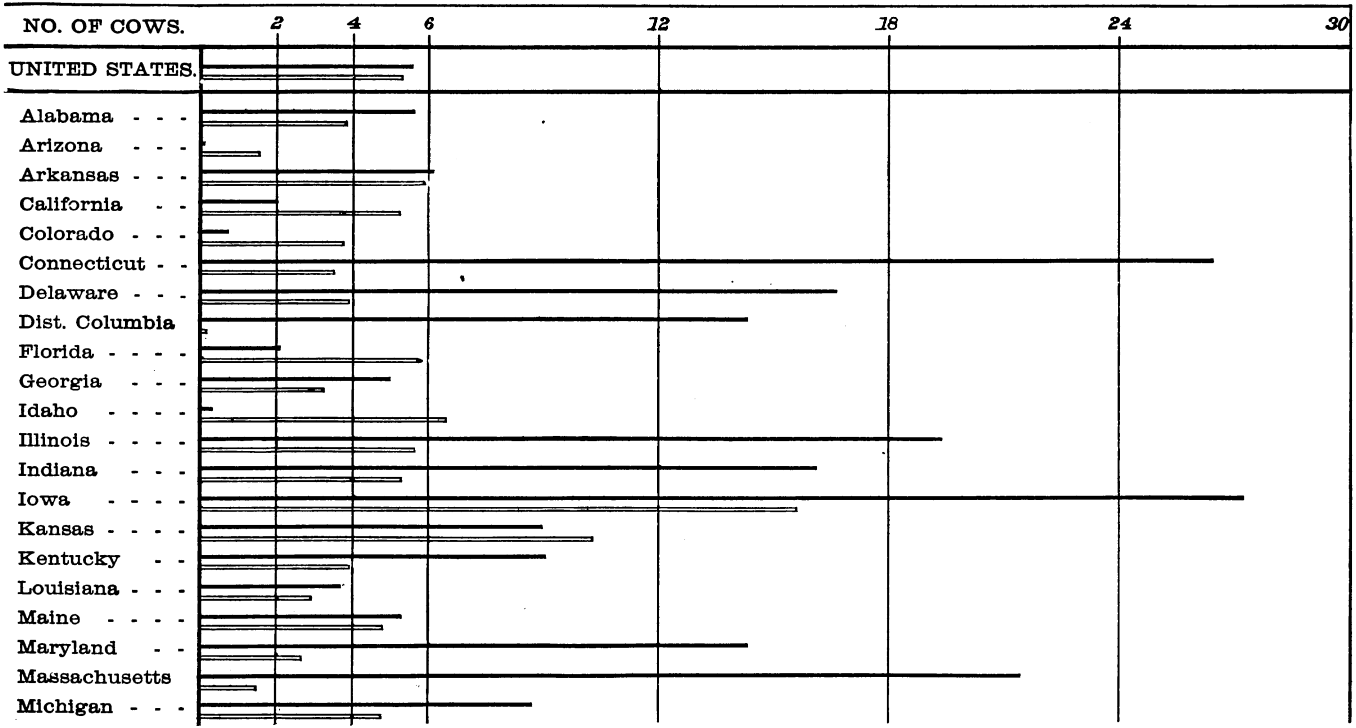
NOTE.—Diagram E, which follows on the next two pages, serves to illustrate Table IX. It shows graphically the number of cows per square mile and the number to each 20 persons; thus two lines are opposite the name of each State and Territory. Twenty persons are taken instead of 100, which might seem more natural, because that is nearly the number of persons to the square mile in the United States, and in the average for the whole country there would be almost as many cows per 20 persons as per square mile. When the upper line is long it indicates that the industry is highly developed, because a large number are carried on a small area. When the lower line is long it shows that dairying is a principal industry, because the number of cows is large in proportion to the population. For example, dairying is highly developed in New York, Iowa, and Connecticut, as is shown by the long upper lines, while the relative importance of the industry, as shown by the lower lines, is much greater in Iowa than in either of the other two. On the other hand, the lower lines for South Dakota, Nebraska, and Minnesota show dairying to be a leading industry, although the upper lines indicate that it is not highly developed in these States. It may be readily seen which States are above or below the average of the country by comparing the lines for any State with those for the whole country, which are at the top of the diagram.

TABLE X.—*Pounds of cheese and butter produced per square mile of land surface in each State and Territory in 1889.*

	Cheese.	Butter.		Cheese.	Butter.		Cheese.	Butter.
United States	86.45	405.90	Maine	48.56	568.64	Oklahoma	0.04	9.99
Alabama	.12	282.27	Maryland	2.39	1,100.09	Oregon	5.25	52.08
Arizona	.10	1.02	Mass	47.95	1,294.81	Pennsylvania	121.32	2,138.48
Arkansas	.40	296.43	Michigan	93.51	911.43	Rhode Island	299.20	1,105.28
California	31.82	173.41	Minnesota	54.19	614.58	S. Carolina	.08	190.17
Colorado	1.27	34.94	Mississippi	.11	280.29	S. Dakota	7.21	177.75
Connecticut	63.68	2,140.20	Missouri	24.34	649.42	Tennessee	2.42	679.77
Delaware	.18	1,272.07	Montana	.08	7.31	Texas	.56	122.56
Florida	.03	15.99	Nebraska	16.51	441.11	Utah	2.15	22.08
Georgia	.22	245.56	Nevada	.47	4.46	Vermont	677.82	3,108.86
Idaho	3.84	12.95	N. Hampshire	49.38	1,095.22	Virginia	5.44	467.59
Illinois	184.80	1,476.34	New Jersey	78.77	1,189.37	Washington	4.80	52.09
Indiana	33.18	1,396.68	New Mexico	.15	.70	W. Virginia	3.87	571.38
Iowa	103.54	2,271.95	New York	2,605.77	2,367.23	Wisconsin	1,003.03	1,108.46
Kansas	33.46	617.32	N. Carolina	1.25	270.26	Wyoming	.16	4.39
Kentucky	1.62	725.96	N. Dakota	2.57	87.74			
Louisiana	.09	46.01	Ohio	545.98	2,000.07			

DIAGRAM E.—*Number of cows per square mile and per 20 persons in each State and Territory, 1890.*

[The upper line (heavy) represents the number of cows per square mile. The lower line (open) represents the number of cows per 20 persons.]



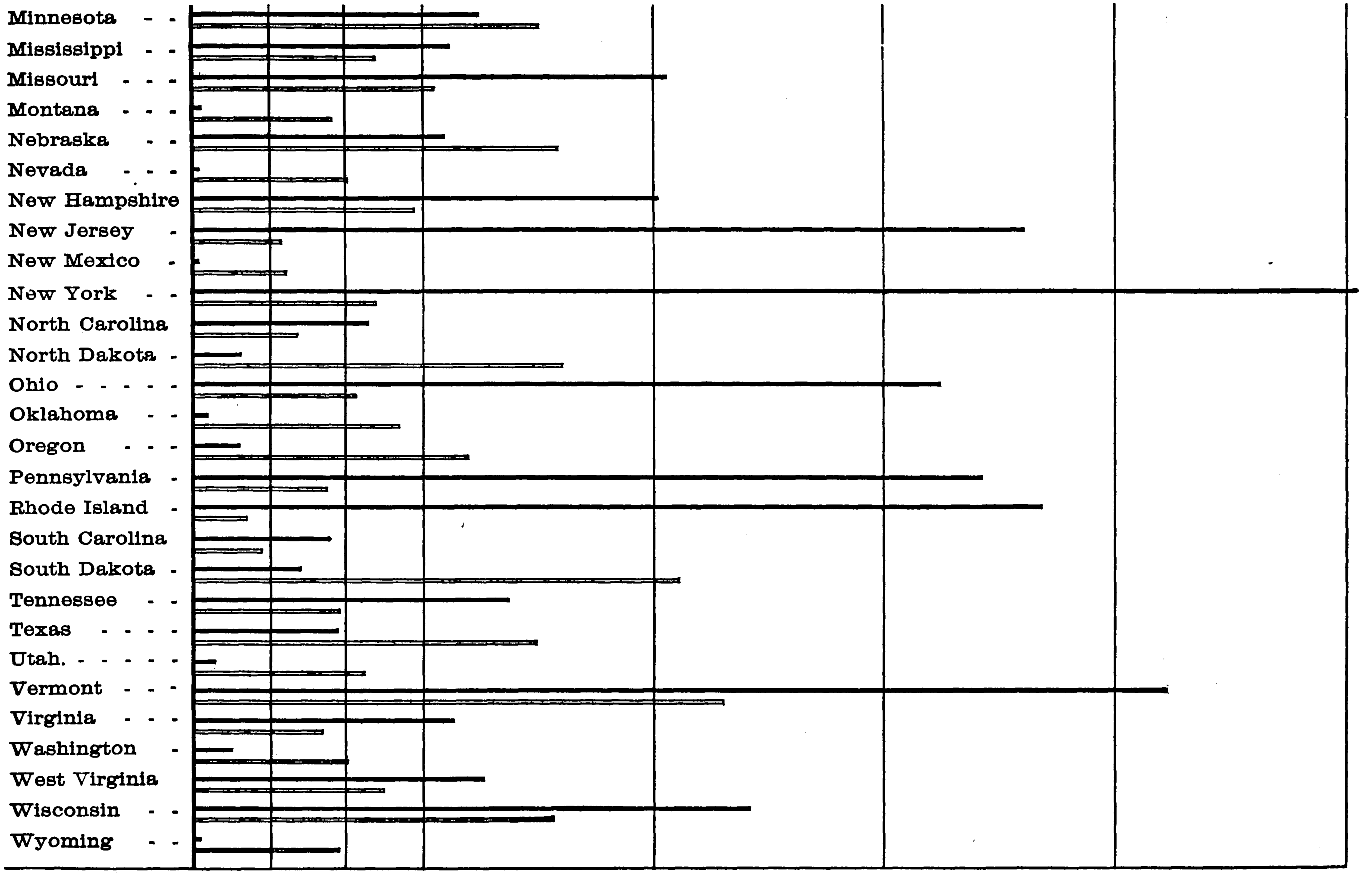

Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah.
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

TABLE XI.—*Rank of each State and Territory in 1890 in regard to*—

	Land area.	Population.	Persons in agriculture.	Number of cows.	Milk produced.	Butter produced.	Cheese produced.	Persons per square mile.	Cows per square mile.	Butter per square mile.	Cheese per square mile.
Alabama	26	17	7	19	24	21	42	25	27	27	41
Arizona	5	47	47	48	48	47	41	47	48	47	43
Arkansas	25	24	18	16	27	20	36	29	26	26	36
California	2	22	24	17	15	17	9	34	36	33	18
Colorado	7	31	38	37	36	35	29	38	40	39	32
Connecticut	46	29	33	31	26	29	24	4	3	4	11
Delaware	47	41	41	40	38	37	48	9	11	10	38
Florida	24	32	31	33	43	43	46	35	35	41	48
Georgia	19	12	3	20	28	22	39	22	29	30	37
Idaho	10	44	44	41	42	41	22	44	43	42	26
Illinois	21	3	1	3	4	4	4	10	10	7	6
Indiana	37	8	13	11	9	9	15	11	12	8	17
Iowa	22	10	12	1	2	1	6	20	2	3	8
Kansas	12	19	19	9	8	8	11	30	18	20	16
Kentucky	35	11	14	14	13	14	32	12	17	17	31
Louisiana	30	25	20	27	37	38	44	27	32	38	44
Maine	39	30	27	29	23	19	13	28	28	23	14
Maryland	41	27	26	30	30	27	35	7	14	14	29
Massachusetts	44	6	28	26	18	28	20	2	7	9	15
Michigan	20	9	16	13	7	7	8	18	19	16	9
Minnesota	13	20	22	10	11	10	10	31	22	21	12
Mississippi	29	21	9	18	29	26	43	26	24	28	42
Missouri	17	5	6	6	10	11	12	16	15	19	19
Montana	3	43	43	42	41	42	40	45	44	44	46
Nebraska	15	26	23	12	12	12	14	32	25	25	20
Nevada	6	48	48	47	45	44	34	48	47	45	35
New Hampshire	43	33	36	34	31	30	19	14	16	15	13
New Jersey	45	18	30	28	20	31	16	3	6	11	10
New Mexico	4	42	39	44	47	48	37	43	45	48	40
New York	28	1	5	2	1	2	1	5	1	2	1
North Carolina	27	16	8	23	25	25	33	21	30	29	33
North Dakota	16	40	35	36	32	32	26	40	37	35	27
Ohio	33	4	4	7	5	5	3	8	9	6	4
Oklahoma	36	45	42	45	46	46	47	42	42	43	47
Oregon	9	38	34	32	33	34	18	39	38	37	23
Pennsylvania	31	2	15	5	3	3	7	6	8	5	7
Rhode Island	48	35	45	43	39	40	21	1	5	13	5
South Carolina	38	23	11	35	34	33	45	17	33	31	45
South Dakota	14	37	29	24	21	24	17	37	34	32	21
Tennessee	32	13	10	15	16	16	30	13	20	18	28
Texas	1	7	2	4	14	13	28	33	31	34	34
Utah	11	39	40	39	40	39	27	41	41	40	30
Vermont	42	36	32	22	17	15	5	19	4	1	3
Virginia	34	15	17	21	19	18	25	15	23	24	22
Washington	18	34	37	38	35	36	23	36	39	36	24
West Virginia	40	28	25	25	22	23	31	24	21	22	25
Wisconsin	23	14	21	8	6	6	2	23	13	12	2
Wyoming	8	46	46	46	44	45	38	46	46	46	39

NOTE.—The above table is based on data in Tables II, VII, IX, and X. The first three columns show the rank of each State and Territory in size, total population, and agricultural population. The next two columns show their rank in the total number of cows and total milk production. It will be seen that in almost every case where dairying is extensively practiced a State ranks higher in total milk production than number of cows, showing the superior class of stock. The sixth and seventh columns show the rank in the total production of butter and cheese. The last four columns show intensity, and are more interesting in some respects than any of the others. One's opinion of the condition of dairying in any State is often formed by the total production, which depends largely on the size of the State. But some of the small States may have a much higher development of their dairy industry and produce more per square mile than large ones that produce a large total, as is shown in Table X. The ranks of the States and Territories in regard to production per square mile are given in the last two columns.

TABLE XII.—*Neat cattle on ranges in the United States.*

[Census of 1890.]

	Cattle.		Cattle.
Arizona	659, 758	New Mexico	1, 054, 022
California	241, 300	South Dakota	29, 033
Colorado	448, 681	Texas	2, 342, 083
Indian Territory	433, 580	Wyoming	248, 097
Montana	750, 619		
Nevada	78, 047	Total United States	6, 285, 220

TABLE XIII.—*Average value of a cow in the United States for the years stated.*

[U. S. Census and Department of Agriculture.]

Years.	Amount.	Years.	Amount.
1850	$20. 02	1891	$21. 62
1860	30. 82	1892	21. 40
1870	39. 11	1893	21. 75
1880	23. 27	1894	23. 18
1885	29. 69	1895	21. 96
1890	22. 13		

TABLE XIV.—*Registered or pedigreed cattle of selected breeds in the United States and their values (estimates furnished by the secretaries of the respective breeders' associations).*

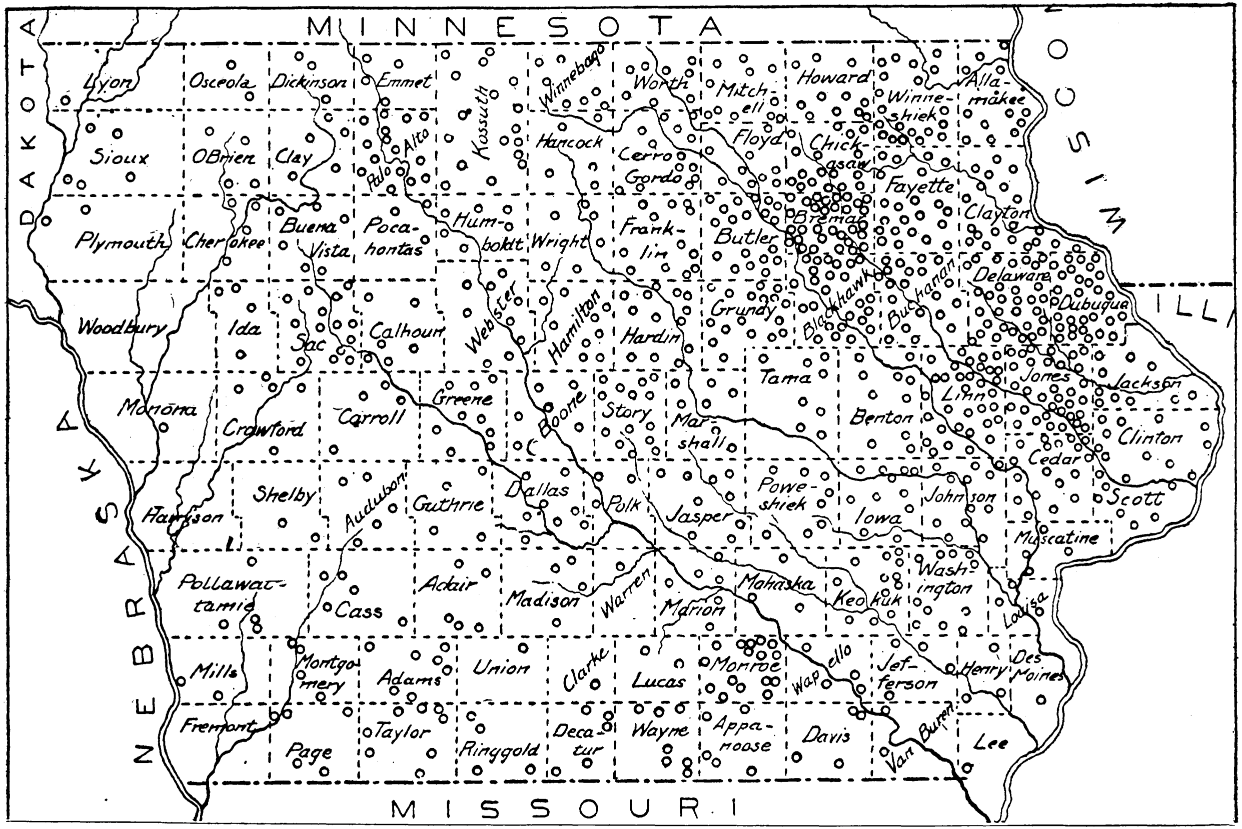
[From Report for 1885, United States Department of Agriculture.]

Breed.	Registered.	Living.	Average.	Total.
Aberdeen Angus	....	3, 500	$300	$1, 050, 000
Ayrshire	12, 867	6, 433	100	643, 300
Devon	10, 187	8, 000	81	648, 000
Guernsey	4, 947	3, 100	149	461, 000
Hereford	....	14, 000	300	4, 200, 000
Holstein-Friesian	21, 138	20, 081	200	4, 016, 200
Jersey	51, 000	....	....	....
[For the year 1895, as reported to the Dairy Division.]				
Ayrshire	18, 750	9, 375	$100	$937, 500
Brown-Swiss	1, 930	1, 200	150	180, 000
Devon	17, 007	14, 500	81	1, 174, 500
Dutch-Belted	971	720	200	144, 000
Guernsey	12, 547	8, 500	165	1, 402, 500
Holstein-Friesian	90, 325	70, 000	100	7, 000, 000
Jersey	150, 000	100, 000	100	10, 000, 000
"Maine State" Jersey	3, 927	2, 800	55	154, 000
Red Polled	4, 408	3, 000	80	240, 000

TABLE XV.—*Growth of the factory system in the United States—States, years, and number of factories, from various sources.*

United States.		Connecticut.		Illinois.		Iowa.		Maine.		New York.		Ohio.		Vermont.		Wisconsin.	
Year.	No.	Year.	No.	Year.	No.	Year.	No.	Year.	No.	Year.	No.	Year.	No.	Year.	No.	Year.	No.
1850	8	1851	1	1862	1	1866	1	1869	1	1851	1	1850	2	1870	28	1841	1
1860	10	1870	7	1874	45	1870	14	1874	40	1861	3	1862	1	1874	32	1864	2
1861	56	1880	16	1875	200	1874	45	1880	41	1864	269	1874	108	1880	85	1865	30
1864	402	1890	50	1890	266	1888	468	1890	42	1865	484	1880	452	1890	124	1872	150
1870	1, 313	......	....	1894	530	1894	870	1894	58	1874	1, 018	1890	361	1894	250	1874	175

The first cheese factory and first creamery were started, respectively, in New York in 1861 and 1864; in Illinois, 1862 and 1870; in Iowa, 1866 and 1871.



OUTLINE MAP OF IOWA, SHOWING DISTRIBUTION OF CREAMERIES (RE-ENGRAVED FROM ANNUAL REPORT OF THE STATE DAIRY COMMISSIONER).

DAIRY STATISTICS RELATING TO SEVERAL STATES, LATER THAN 1890.

[Supplied by various State authorities.]

CALIFORNIA.

[From Louis Tomasini, manager Dairymen's Union of California.]

Cows in the State [1894], total, 333,310.

Used for butter, 207,444; for cheese, 19,200; for the milk trade, 106,666.

Dairy products of State, 1894 (estimated):

31,116,600 pounds butter, at 19 cents	$5,912,154
9,000,000 pounds cheese, at 9 cents	810,000
50,000,000 gallons milk, at 12 cents	6,000,000
Skim milk, etc., made into pork	1,037,220
Calves (333,310), at $2	666,620
Total value average yearly products	14,425,994

Other California yearly products for comparison: Wheat, $16,128,381; gold and silver, $14,000,000; fruits, $11,025,000; grapes and wines, $8,150,000; sheep, lambs, and wool, $7,588,850.

CONNECTICUT.

[From the annual report for 1895, of C. S. Burlingame, State dairy commissioner.]

62 creameries, located in 62 different towns.

Butter produced by same in one year, 4,230,156 pounds.

Average per factory, 68,228 pounds.

NOTE.—Several creameries sell milk and cream mainly, making very little butter.

INDIANA.

[From township assessors' returns, furnished by S. J. Thompson, chief Indiana Bureau of Statistics.]

Cattle and dairy products for April and May, 1895:

Jerseys, 49,136; Holsteins, 9,606; Shorthorns, 55,255; all other, 813,495.

Cattle died in past year, 27,011. Milch cows, 468,043.

Milk produced in year, 145,396,868 gallons; butter made in year, 35,200,916 pounds; cheese made in year, 394,645 pounds.

NOTE.—Figures rather below the facts, as some returns were omitted—for example, about 50 creameries and cheese factories.

ILLINOIS.

[Estimates of dairy products for 1893, made by the Illinois State Dairymen's Association, W. R. Hostetter, secretary, for the souvenir Illinois dairy exhibit, World's Columbian Exposition.]

Value of milk consumed	$21,024,000
Value of condensed milk and cream	1,022,000
Illinois milk sent to St. Louis, Mo	402,960
Butter and cheese sold on the Elgin Board of Trade	8,315,286
Creamery butter and cheese sold outside the Elgin district	6,927,519
Dairy, or farm-made butter	31,000,000
Skim milk, etc., fed to stock, value	7,000,000
Total value—annual products	75,691,765

IOWA.

[From the annual report for 1895 of W. K. Boardman, State dairy commissioner.]

Creameries, etc.—Of the 99 counties in the State 95 have creameries or cheese factories; 2 counties have only cheese factories. (See map of Iowa upon the opposite page.) Of the 855 establishments reported, 64 were cheese factories, 20 made both butter and cheese, and the rest only butter; 282 were cooperative concerns, 132 were owned by stock companies, 438 were proprietary, and of 52 the organization or ownership was uncertain; 546 of these creameries use separators, 131 are operated upon the cream-gathering plan, and 106 combine the two systems; 716 receive milk, 456 pay for it on basis of fat tests, and 197 by weight; 525 creameries average 103 patrons each; there are 80,000 creamery patrons in the State; 516 creameries average 854 cows each, and the whole number of cows contributing to Iowa creameries is about 676,000. The total output of the factories for the year is estimated at $13,300,000 in value, an average of $15,555 per factory.

Shipments of butter from Iowa by rail: 1890, 71,255,796 pounds; 1891, 68,690,716 pounds; 1892, 60,112,931 pounds; 1893, 54,572,902 pounds; 1894, 52,649,284 pounds.

Estimated home consumption, 20,000,000 pounds for 1894.

Milk.—Eleven cities in the State, having a combined population of 350,073, have 383 wagons and stores which supply the milk from 7,316 cows, to 32,211 families, and 460 hotels and boarding houses. This milk is valued at $626,460, or $85.63 per cow. Three thousand nine hundred and thirty-five tests of milk in 1893 gave average of 3.59 per cent of fat; 3,984 such tests in 1894 gave average of 3.79 per cent of fat.

MAINE.

[The secretary of the State board of agriculture, B. Walker McKeen, furnishes returns to that board, and figures from State assessors' returns. All for the year 1894.]

Number of farms		65, 400
Number of milch cows		141, 262
Value of cows		$35, 314, 000
Number of creameries and cheese factories		58
Butter made in creameries, etc	pounds	2, 513, 090
Cheese made in factories	do	500, 000

(The returns were regarded as incomplete.)

MICHIGAN.

[From the State census, June 1, 1894, Washington Gardner, secretary of state.]

Milch cows		506, 390
Milk produced on farms	gallons	212, 070, 373
Value milk and cream sold from farms		$2, 970, 385
Butter made on farms	pounds	49, 951, 378
Cheese made on farms	do	206, 660
Value butter and cheese made in factories		$1, 708, 431
Creameries, cheese factories, etc	number	222
Capital invested		$810, 745
Employees, average number		619
Average wages:		
Skilled laborers		$1. 95
Unskilled laborers		$1. 04
Total wages paid		$195, 564
Number of months in operation, average		7½
Materials used, value		$1, 310, 870
Products, total value		1, 708, 431

(One to six factories not reporting on some items, but do not materially affect these results.)

Cattle in Michigan, 1894:	
Cows	506, 390
Working oxen	11, 267
Others, all ages	554, 583
Total	1, 072, 240

Others, by ages:	
Under 1 year	242,220
1 year and under 2	198,548
2 years and under 3	89,821
3 years and over	23,994
Pure-bred cattle, by breeds:	
Angus	67
Ayrshire	37
Brown-Swiss	3
Devon	48
Galloway	553
Guernsey	83
Hereford	444
Holstein	1,714
Jersey	3,855
Red-Polled	131
Shorthorn	4,059

MINNESOTA.

[From E. J. Graham, assistant State food and dairy commissioner, and P. D. Wildt, commissioner of statistics.]

Creameries, 1893:	
Total number establishments	253
On separator plan	147
Subsidiary skim stations	53
On cream-gathering plan	87
On mixed methods	16
Cooperative creameries	150
Proprietary	72
Owned by stock companies	31
Estimated products, 1893:	
Creamery butter, 23,000,000 pounds, at 21 cents	$4,830,000
Farm dairy butter, 7,000,000 pounds, at 15 cents	1,050,000
Farm dairy butter, 7,000,000 pounds, at 10 cents	700,000
Factory cheese, 2,000,000 pounds, at 9 cents	180,000
Estimated products, 1895:	
Creamery butter, 27,000,000 pounds, at 20 cents	5,400,000
Value of farm dairy butter	2,000,000

NOTES.—Thirty thousand farmers are patrons of creameries; 306 separators are used, of 17 styles and from 5 makers; 92 creameries built in 1892–93 are all on the separator plan and are cooperative concerns. Within the last year reported the proportion of creameries using the separator process has increased from 45 per cent to 60 per cent of the whole, and those operated on the cooperative plan from 42 to 60 per cent. Cheese factories decreased in number from 129 to 65.

Year.	Cows.	Butter.	Cheese.
		Pounds.	*Pounds.*
1871	106,016	7,356,768	469,147
1873	155,454	10,140,316	1,031,510
1875	176,278	12,029,371	1,009,999
1877	200,379	13,443,195	829,075
1879	225,516	15,639,069	586,448
1881	221,213	16,052,020	522,456
1883	288,896	20,525,357	615,497
1885	339,933	24,495,074	850,843
1887	392,027	28,117,172	1,074,251
1889	412,036	29,165,137	1,274,076
1891	424,881	27,203,945	1,374,555
1892	411,349	28,041,476	868,567
1893	....	35,864,832	1,675,525

Population of Minnesota: 1870—439,706; 1875—597,407; 1880—780,733; 1885—1,117,798; 1890—1,301,826.

NEBRASKA.

[From S. C. Bassett, secretary State Dairy Association.]

Estimates for 1894:

Number of cows		563, 313
Value of cows		$12, 502, 886
Creameries, etc	number..	97
Butter made in creameries	pounds..	7, 072, 593
Butter made on farms	do....	30, 669, 378
Cheese made in factories	do....	885, 079
Cheese made on farms	do....	510, 214
Milk, total product	gallons..	159, 245, 089
Farm value of total milk		$11, 943, 381

NEW YORK.

[From report for 1894, of the State commissioner of agriculture, Fred. C. Schraub.]

New York has 60 counties; butter and cheese factories are operated in 48 of them.

Creameries or butter factories		225
Cheese factories		1, 156
Combined butter and cheese		213
Dairy manufacturing establishments		1, 624
Products, 1894:		
Butter made at creameries, etc	pounds..	23, 218, 626
Cheese made at factories, etc	do...	115, 760, 325

NORTH DAKOTA.

[From reports of State assessors for 1894, compiled by department of agriculture and labor, A. H. Laughlin, commissioner.]

Milch cows, 2 years old and over		114, 985
Value of cows		$1, 389, 832
Creameries, cheese factories, etc		24
Butter and cheese made in same not given.		
Butter made on farms	pounds..	4, 428, 157
Cheese made on farms	do....	100, 891
Milk sold from farms	do....	791, 306

OHIO.

[From the office of the secretary of state, furnished by F. B. McNeal, dairy and food commissioner.]

Milch cows (1893)		583, 071
Butter made on farms	pounds..	49, 737, 682
Butter made in creameries	do....	4, 177, 414
Cheese made on farms	do....	892, 089
Cheese made in factories	do....	13, 824, 696
Milk sold from farms, excluding that sent to creameries, etc	gallons..	22, 095, 825

YEARLY DAIRY PRODUCTS.

[From the Ohio Farmer, 1872.]

Year.	Butter.	Cheese.	Year.	Butter.	Cheese.
	Pounds.	*Pounds.*		*Pounds.*	*Pounds.*
1861	35, 442, 858	20, 637, 253	1865	32, 450. 139	16, 947, 905
1862	34, 065, 629	20, 752, 097	1866	36, 344, 608	22, 198, 929
1863	31, 121, 275	19, 130, 750	1867	34, 833, 445	19, 985, 486
1864	31, 141, 876	18, 097, 095	1868	37, 005, 378	17, 814, 599

VERMONT.

[From George W. Pierce, secretary Vermont Dairymen's Association.]

Estimates for 1893-94:

Milch cows		225,000
Value of same		$5,625,000
Creameries and cheese factories		250
Butter made on farms	pounds	18,000,000
Butter made in creameries	do	13,000,000
Cheese made on farms	do	1,000,000
Cheese made in factories	do	2,000,000

(Partially based upon returns.)

WASHINGTON.

[From correspondent in Chicago Produce.]

Estimates for 1895:

Creameries and cheese factories		52
Daily output of same—		
Butter	pounds	7,000
Cheese	do	2,400
Annual products of the State—		
Butter	pounds	2,190,000
Cheese	do	547,000
Consumption—		
Butter	pounds	2,920,000
Cheese	do	730,000

NOTE.—In 1891 the State produced only 5 per cent of the butter and cheese there consumed.

WISCONSIN.

[From the State census of 1895, furnished by H. C. Adams, dairy and food commissioner.]

Farms		150,801
Milch cows		842,039
Value of cows		$17,442,144
Creameries		753
Cheese factories		1,337
Butter made on farms and in creameries	pounds	74,653,730
Cheese made on farms and in factories	do	52,480,815
Milk produced on farms, estimated	gallons	315,000,000
Value of annual dairy products, estimated		$30,000,000